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CONTAGIOUS, CONSTITUTIONAL AND BLOOD DISEASES

BY

A. L. BLACKWOOD, B. S., M. D.

Professor of Clinical Medicine and Materia Medica in the Hahnemann Medical College and Hospital, Chicago. Attending physician to the South Chicago Hospital.

Author of "A Manual of Materia Medica, Therapeutics and Pharmacology," "Diseases of the Heart," "Diseases of the Lungs," "Diseases of the Liver, Pancreas and Ductless Glands," "The Food Tract, Its Ailments and Diseases of the Peritoneum."

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PREFACE.

THE reception accorded the author's former works has encouraged him to continue, and he now presents this work which embraces contagious, constitutional and blood diseases. This, together with one more section which is now in preparation, will complete the author's plan for a treatise, in six parts (each a complete work in itself), on "Internal Medicine." In this work the author has endeavored to give the general practitioner and the medical student the most recent and scientific advancements in the management of contagious, constitutional and blood diseases. The etiology and pathology of each disease has been considered; the symptoms, diagnosis and differential diagnosis have been considered more in detail, while the treatment, prophylactic and medicinal, have been considered more extensively.

In the preparation of this work many unproved theories have been omitted, while the essential and modern verifications have been inserted. Special attention has been given to the selection of the homeopathic remedy. While the adjuvant is of great importance in the management of all these diseases, yet it is the correctly selected remedy that is our aim.

A. L. BLACKWOOD, B. S., M. D.

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CONTAGIOUS AND INFECTIOUS DISEASES

There is a slight distinction between contagious and infectious diseases. The term contagious is limited to the transmission of a disease by actual contact of the diseased part with a healthy absorbent or an abraded surface. By the term infectious is understood the transmission of a disease through the atmosphere by floating germs, or by what for a better term may be termed miasma. There are, however, cases which do not come under either of these terms, and again there are some cases which fall under both.

These diseases may prevail endemically or epidemically. By endemically is implied that they persist in certain localities due to their being favored by local conditions. Epidemically implies that they develop and spread rapidly, but that the duration of the prevalence of the disease is short. They are characterized by pyrexia, fever, immunity, contagion, prophylaxia. By the term pyrexia is understood an elevation of the temperature without any other attending symptoms. By the term fever there is the elevation of the temperature together with those symptoms which attend it, as languor, headache, pains in the back, extremities, etc., but cases of a fatal character may be met with in which there is no elevation of the temperature.

The temperature in health is quite stationary at 98.4° F., with a slight variation. The majority of the physiologies give a normal variation of from 1° F. to ½° F., but such cases should be watched carefully. The lowest point of the temperature is reached about 2 A. M., while the highest point is reached from 12 M. to 6 P. M.

A temperature ranging from 99.5° to 100° F. is referred to as sub-febrile, 100°–102° or 103° F. as moderate, 104°–105° F. as high fever, above 105° F. as hyperpyrexia. A temperature from normal to 90° F. is said to be subnormal, below 96° F. it is said to be collapsic.

Each one of the infectious or contagious diseases has a specific origin, dependent upon distinct microorganisms, and there is no merging of one disease into another. Some of these organisms have their abode in the water or soil, while others are wafted about by the air. Some of these organisms subsist only upon living matter, while others subsist upon both living and dead material. The media of the conveyance of these subjects are principally water, food, air and insects.

Immunity is a term applied to that condition of an organism which enables it to resist the attacks of bacteria and their toxic secretions. Generally speaking, it is the opposite of susceptibility. Natural immunity exists in animals as an inheritance from immune ancestors. Absolute immunity is uncommon. Natural acquired immunity may be produced by an injection of cultures of specific microbes, the virulence of

which have been naturally or artificially reduced by heat or other methods, or of filter culture as in production of diphtheria serum, or of the serum of animals that have been rendered immune by these methods.

The mechanism of immunity is one that requires more space than a work of this size can afford to devote to it, and the interested reader is therefore referred to a modern work on pathology.

An attack of fever is usually divided into a stage of invasion, which may be preceded by one of the prodromes, a stage of fastigium and a stage of decline or defervescence. During the first stage there may be all the external appearance of coldness. The patient complains of being cold and presents a cyanotic appearance which may be due to a spasm of the superficial blood-vessels, but during this period the thermometer will show a rise of the temperature. The heart action and respirations are quickened, there is loss of appetite and nausea and vomiting, the tongue is coated, the urine lessened in quantity, there is headache and pain in the back and limbs.

It is well for the physician to establish a systematic method of procedure in examining all cases, and this is especially true of infectious diseases, when inquiry should be made regarding the possibility of exposure and of the presence of any prevailing epidemic in the neighborhood, the mode of the appearance of the symptoms, the character of the onset of the fever and the condition of the heart, kidneys, nervous system and of the alimentary canal.

If a rash has appeared, the time of its appearance, and the location when first observed, the character of the eruption and how its appearance affected the condition of the patient in general, should be carefully noted. The use of the thermometer should be carefully observed and the importance of a rectal or vaginal use of it should be considered, especially if the skin and buccal mucous membranes are dry.

In making a diagnosis, the presence or absence of fever, how it appeared and its daily action, should be considered. The condition of the nervous system and circulatory system should be carefully investigated. The rash, its character, time of appearance and the changes that have taken place during its presence should be noticed.

In considering the prognosis much attention should be devoted to the early temperature range and rapid rise of the temperature. The temperature upon the eighth day is considered by some authorities as indicating the range of the temperature, therefore a very high temperature is always considered an ill omen.

The isolation of the patient and the preparation of the room are of great service. The care and the cleanliness of the patient and his room should be considered.

TYPHOID FEVER.

Synonyms.—Enteric Fever; Gastro-Enteric Fever; Nervous Fever; Autumnal Fever; Typhus-abdominalis; Entero-mesenteric Fever.

Definition.—This is an acute specific infectious disease characterized by inflammation and ulceration of Peyer's patches; by swelling and inflammation of the mesenteric glands; a fever of a typical range with petechial eruption and gastro-intestinal and nervous symptoms.

Etiology.—Causes are exciting and predisposing. The exciting cause is the bacillus typhosus of Eberth-Gaffky. The predisposing causes are climate, season, age, infected water, milk, food, etc.

While it prevails in every climate, it is most common in the temperate zones, during the autumn months, especially following hot and dry seasons. It occurs equally in males and females and is most common in those from fifteen to thirty years of age. It is rarely seen after forty years, and well marked cases have been seen at eighteen months of age.

Unfavorable hygienic surroundings, such as impure drinking water, food, and defective drainage, also are predisposing agents. The house fly may be a carrier of the infection. One attack usually confers immunity, but exceptions are met with. The period of incubation is from two to three weeks.

Pathology.—The specific lesions occur in the lymphatic structure, especially the solitary follicles,

Peyer's patches, the mesenteric glands and spleen. During the early stage the solitary follicles and Peyer's patches are swollen, congested and reddened. They soon lose their congested appearance and turn grayish or whitish and project above the surrounding surface. When examined by aid of the microscope, the lymphoid elements are found in a state of active proliferation, and, in addition, large round cells are actively phagocytic and have been discovered in the lymphatic channels at some distance from the local lesion, as well as in the mesenteric glands and in other distant parts. The mucosa surrounding these may retain a normal appearance, or it may be somewhat inflamed. The lymphoid structures may remain unchanged for several days, but by the close of the first week necrosis usually occurs. The center of the solitary follicles or part of the Peyer's patches becomes more soft and yellow. After a few days the necrotic portions slough, leaving an ulcerated surface with necrotic edges and hemorrhagic infiltrates. The ulcer is found in an acute stage at the end of the second or the beginning of the third week. Resolution may occur without necrosis or ulceration. The lymphoid elements of the follicles and patches are usually permanently destroyed. Occasionally complete restitution of the tissues occurs. When the lymphoid follicles of the patches have become necrotic and are infiltrated with blood, dark pigmented spots are found and produce a condition known as "shaven-beard."

Extensive necrosis may lead to erosion of a blood-vessel with resulting hemorrhage. The walls of the

intestine may be perforated, causing peritonitis, which may occur, however, without a complete perforation. The mesenteric glands are enlarged, the enlargement being in direct proportion to their proximity to the ulcer. During the first stage they are of a dark red color, are soft and exude a small quantity of fluid on section. Later they become larger, harder and of a whitish color. They may become necrotic and rupture, but more frequently resolution takes place after the first stage.

The spleen is enlarged and softened. The muscles, especially of the abdomen, may present spots of degeneration of a waxy or hyaline character and abscesses may occur.

Symptoms.—Owing to its complex and variable clinical course and its many complications it is difficult to state the symptomatology of typhoid fever concisely. Different epidemics show varying features, while in different countries and climates there are divergences, many of which cannot be considered in this brief summary.

The division of the febrile stages into weeks is frequently arbitrary, and yet, when not too rigidly adhered to, is often of service. Sudden onset and rigor are not common. The onset is usually insidious and is preceded by prodromes of malaise, headache, indefinite pains in the extremities and back, and a slight diarrhea, which, if not present, is easily induced.

After an indefinite period of prodomes, the symptoms assume a more definite outline and gradually

increase in severity, or there may be a chilliness or a distinct rigor followed by a high fever. The pupils are dilated, appetite is lost, and the tongue is covered by a dry white fur, edges and tip being red. Diarrhea, if not already present, may now appear; headache is increased, especially at night; the pulse is frequent and its volume good, but later becomes dicrotic. The temperature is characterized by a gradual rise, being higher each evening by about a degree and a half, until the fifth or seventh day, when its height is reached. Toward the end of the week some tympanitis occurs, and at this time a few scattered rales may be heard posteriorly over the chest. There is usually a pallor of the face with flushed cheeks. The urine shows the changes customary during febrile conditions. At the end of the first week the spleen is perhaps slightly enlarged and the characteristic eruption may be noticed.

As the second week is entered upon the symptoms just described become aggravated, with the exception of the headache, which commonly disappears. The eruption, if not previously noticeable, appears on the abdomen, chest or back, rarely upon the extremities or upon the face. It consists of slightly elevated rose-colored spots, from one to four millimeters in diameter, disappearing on pressure and reappearing when the pressure is removed. They appear in successive crops, which last from two to three days. The spleen is now found to be enlarged, the fever high and continuous in type, the pulse from 90 to 120, weaker and dicrotic. Occasionally the hearing

is dull and there may be low muttering delirium. The intestinal symptoms are more pronounced than during the first week. In favorable cases defervescence may set in.

The third week the symptoms become more severe. Asthenia and emaciation are pronounced and fresh crops of the eruption may appear. At this time, which corresponds to the stage of ulceration, such complications as perforation and hemorrhage may be expected. The temperature-curve becomes remittent in type, the pulse feeble and the first sound of the heart may be inaudible. Among the symptoms are excessive sweating, and sudamina, dry and coated tongue, with brownish fur upon it, sordes upon the teeth and probably involuntary urination and defecation. The delirium now becomes more marked and perhaps violent in character, or there may be stupor, coma, or subsultus tendinum.

During the fourth week the symptoms ameliorate. The temperature becomes intermittent; the sordes disappear as the tongue clears and the spleen contracts to its normal size. The urine increases in amount, and if albumin has been present it disappears. The mind clears and great hunger develops. Convalescence is protracted, but may be interrupted by complications, relapses and sequelæ. The temperature during convalescence is very unstable, running a subnormal course. Relapses may be induced by constipation, excitement, improper food, etc.

The temperature rises gradually, reaching its height in from five to seven days. During the second week

the course of the temperature is subcontinuous, falling each morning a degree, or a degree and a half, and rising each evening to the same height as on the previous evening. During the third week there are greater remissions in the morning, the temperature assuming a decided remittent type until the fourth week, when it falls to or below normal, giving an intermittent type. During convalescence the temperature is frequently subnormal, being easily disturbed. Indiscretions in diet, visits of friends, excitement, mental emotions and constipation frequently produce a rise, called a recrudescence.

Departure from the type may occur. There may be a sudden rise of temperature at the onset beginning with a chill, running a brief course and ending by crisis. This is known as the abortive form and takes place particularly in the enteric fever of children, showing a decided remittent range, thus giving rise to one of the synonyms called "infantile remittent fever." It is common for the typical curve to be interrupted by inter-current diseases or complications. Hyperpyrexia, called the preagonistic rise, occasionally occurs, especially in fatal cases, just before death. The fever curve of relapse corresponds to the original attack, but the fastigium is reached more quickly and defervescence takes place sooner.

Circulatory System.—As is usual in febrile diseases, the pulse frequently corresponds to the intensity of the fever, although this disease is one of relatively slow pulse. At the onset the pulse is of full volume and the tension is low and soon becomes

dicrotic; this being an important diagnostic phenomenon in enteric fever. The pulse frequency in uncomplicated cases is from 90 to 100, but in severe cases it may be accelerated. A pulse rate above 110 is an unfavorable omen.

There are changes in the heart muscles corresponding with those of the pulse. In severe cases the first sound of the heart becomes feeble or may be inaudible. Endocarditis and pericarditis, as complications, are of rare occurrence. Venous thrombosis, especially of the crural vein, often occurs during convalescence.

Blood.—Leukocytosis is absent in this disease, but any inflammatory complication, particularly peritonitis, gives rise to it. A condition of leukopenia or hypoleucytosis may be present. As the fever progresses anemia becomes more pronounced, being of a chlorotic type, continuing into convalescence and giving rise to "post-typhoid anemia." The Widal reaction is present in about 95 per cent. of the cases.

Respiratory System.—Epistaxis is an early and a common symptom; some degree of bronchitis is commonly met with, and in severe cases, from continuity of structure, the catarrhal process may extend downward, giving rise to broncho-pneumonia. When coma occurs, food, that is retained in the mouth and not introduced into its proper channel, may get into the trachea, set up inflammatory changes, and give rise to a form of pneumonia as deglution inhalation, or insufflation pneumonia. This complication is one of extreme gravity. Croupous pneumonia also oc-

curs as a complication. Pleurisy and empyema are occasionally met with.

DIGESTIVE SYSTEM.—Nausea and vomiting may take place at the onset and continue for a few days. Epigastric pain, chiefly referred to the right iliac fossa, frequently occurs. Diarrhea is a characteristic symptom and may be present from the first and continue throughout the disease, even into convalescence. Constipation is present in some cases, but diarrhea is easily invoked by mild laxatives. Stools may vary from two or three to a dozen or more in twenty-four hours. They are thin and brownish in color at first, but soon become yellowish, and are known as "pea soup" stools. The tongue is characteristic. At first there is a slight whitish coat appearing posteriorly, while the edges and tip are red, later becoming dry, with yellow and brown coating. At this stage it may also show fissures. Tympanites is common. Appendicitis may be a complication.

HEMORRHAGE.—Hemorrhage from the bowel is an important complication, and is found in about 5 per cent. of the cases, occurring late in the second or early in the third week and varying from a few drops to a quart or more. This gives rise to characteristic symptoms. Sudden fall in the temperature, a rapid pulse, disappearance of nervous symptoms, such as delirium and coma, increased respirations, commonly called "air hunger," and perhaps the appearance of blood in the stool are the diagnostic criteria by which this complication is recognized.

CONCEALED HEMORRHAGE.—If the blood does not

appear in the stool with these symptoms, it is termed "concealed hemorrhage," and may be recognized by a sausage-shaped tumor in the right iliac fossa, which is dull or flat on percussion.

INTESTINAL PERFORATION.—This is the most serious complication of typhoid fever. It is most frequently met with during childhood or before the fifteenth year of age. It occurs between the second and fourth weeks, and is most frequent in those cases where the attack is severe and attended with extensive ulceration and a persistent and profuse diarrhea; but may be the result of coarse, indigestible food, extreme tympanites, obstinate vomiting, movements on the part of the patient and intestinal worms. Occasionally the perforation appears without any of these causes in mild cases. In the great majority of cases the perforation is in the ileum. The next most frequent site is the large intestine, then the appendix, while a small percentage of them are in the jejunum. The symptoms of perforation usually appear suddenly. There is severe pain in the right iliac fossa, which soon becomes general. The pain simulates a colic, but it may be entirely absent. Vomiting is an early symptom and is attended with collapse. The temperature suddenly falls to normal or subnormal; the features become pallid and pinched; the pulse is small, rapid and compressible.

The condition of the abdomen varies; at times it is distended, when the liver dullness is obliterated. In other cases it is of the supracostal type. The urine may be suppressed. The prostration is pro-

nounced. The voice is husky and there is a cold, clammy perspiration over the body. At times death is immediate, the result of shock. When death is delayed, symptoms of peritonitis develop. There is a rise of the temperature; the tympanites becomes extreme; the abdominal walls are rigid; the legs are drawn up and death occurs in from two to four days, occasionally later. The diffused form of peritonitis following perforation may develop slowly. Leukocytosis is present in these cases, but not in simple uncomplicated typhoid fever.

General Peritonitis.—Frequently following perforation, vomiting sets in; abdominal pain becomes more intense and general; and leukocytosis is usually present. The abdomen is distended, the muscles rigid and board-like, and the pulse is frequent and wiry. The temperature rises, flatus does not escape and the lower border of liver dullness is obliterated. These symptoms indicate general peritonitis. Nervous symptoms are not marked.

Liver and Ducts.—Recent investigation has shown that the bile is often infected with the bacillus typhosus, and thus may be the cause of relapse. Jaundice is rare and very fatal.

Spleen.—The spleen is enlarged in 90 per cent. of the cases and reaches its maximum size some time in the course of the second week.

Nervous Symptoms.—Headache is one of the early prodromes; it is usually frontal, but may be general; worse toward night, and subsides early in the second week. Drowsiness, apathy, delirium, dizziness, dul-

ness of hearing and vision, twitching of the tendons, and in grave cases stupor, which passes into coma, take place. Dilatation of the pupils may also be referred to the nervous system. Convulsions are rare and only occur when meningitis or other complications take place.

Skin.—The rose spots constitute the specific eruption. They occur as scattered pale-red, slightly elevated papules, oval or irregularly circular in shape, disappear on pressure and are from one to four millimeters in diameter. They appear in successive crops, each individual crop having a duration of from two to three days. These spots appear upon the abdomen, the upper and lower portions of the chest, the thighs, the shoulder-blades and exceptionally upon the face. They are not very numerous as a rule, but may be abundant. A copious rash indicates a severe infection. The rash commonly appears at the end of the first, or early in the second week, and continues throughout the disease, even into defervescence. Sudamina occur late when sweating begins. Petechiæ are rare and of grave import. Herpes of the nose and lips takes place in some cases. A diffuse erythematous rash occasionally appears upon the face. Abscesses are complications. Furunculosis occurs in convalescence. Bed sores appear in certain cases. The hair falls out during convalescence. Occasionally a bluish rash may appear upon the abdomen and does not disappear upon pressure. This is known as the "tache bleuâtré," and indicates body-line.

Purulent inflammation of the middle ear is a com-

mon sequel. The "tache cérébralé" is present in some cases.

URINE.—The urine presents changes that accompany febrile diseases. The diazo-reaction is of some diagnostic importance. The toxicity of the urine is increased, especially after systematic bathing.

RELAPSE.—Relapses occur in from three to eighteen per cent. of the cases and at any time during the course of the disease, most generally during period of defervescence. They are characterized by a return of all the symptoms; the course, however, is usually briefer than the original attack. Two, three, and even four relapses have been observed in a given case.

VARIETIES.—1. Abortive. The abortive form is of short duration, beginning abruptly by chill and ending by crisis.

2. Mild. The symptoms are slight, the temperature does not reach 103° F., the diarrhea is mild, the prostration is not great and convalescence is rapid.

3. The ambulatory form, "walking typhoid" or "latent typhoid." Symptoms are so mild or the systemic resistance so great that the patient does not take to bed. These cases often terminate fatally.

4. The apyrexial form. This runs its course without fever.

5. Grave form. Symptoms are severe and usually associated with subcutaneous or internal hemorrhages. This is sometimes called the hemorrhagic form.

6. Infantile remittent fever. Enteric fever in chil-

dren is a common occurrence and is characterized by fever of a remittent type, with the characteristic eruption often absent.

7. Enteric fever of the aged. This disease is rare after forty years of age, but old people are occasionally affected. The mortality is high.

INTERCURRENT DISEASES.—Cerebrospinal fever, malaria, tuberculosis and syphilis are the principal intercurrent affections.

The myocardium is often affected, in some cases there being hyaline or parenchymatous degeneration, while in others a simple acute myocarditis or acute endocarditis. Acute degeneration of the kidney and acute nephritis are met with. Acute lobular pneumonia and croupous pneumonia are frequent complications. The blood presents a condition of leukopenia, but there is no leukocytosis.

Diagnosis.—This is based upon the characteristic fever record, the typhoid tongue, the abdominal symptoms, the enlarged spleen, the rose spots pain, headache, dullness, intestinal gurgling in the ileocecal region, the typhoid stools, diarrhea, or if constipation is present, diarrhea being easily induced. The Widal test is of value in doubtful cases. It is of no use, however, before the second week of the fever and the condition calling for it may persist for ten years in the blood of one who has recovered from an attack. Ehrlich's diazo-reaction is present in a large percentage of cases, but it is also present in other affections.

TYPHOID FEVER.	TYPHOID CONDITION.
1. There are present the symptoms of typhoid fever, the epistaxis, headache, continuous fever and its gradual invasion.	1. This is a condition of asthenia and of lowered vitality which develops in the course of certain febrile conditions, surgical affections, septicemia and pyemia. It may be attended with diarrhea and evidences of a constitutional or local disease.
2. It is a disease of early life, infrequent after thirty-five and rare after fifty.	2. Frequently appears in the disease of the aged, pneumonia in the aged frequently assumes a typhoid type.
3. The rose-rash, the diazo-reaction, and the Widal reaction are all characteristic.	3. Not present.

TYPHOID FEVER.	PNEUMONIA.
1. The respiratory frequency is in proportion to the pulse rate.	1. The respiratory frequency and the pulse rate are out of proportion.
2. There are no signs of pulmonary consolidation.	2. Pneumonia may present symptoms of typhoid character, in which case the temperature course may be similar to that of typhoid fever.
3. The sputum is light, pneumonia may appear as a complication.	3. The sputum is of a rusty color.
4. It appears slowly, subsides gradually.	4. It appears quickly, with pronounced chill, and terminates usually by crisis.

TYPHOID FEVER.	TRICHINIASIS.
Trichiniasis may present many characteristics of typhoid fever.	
1. Severe headache, enlarged spleen, epistaxis, characteristic stools, temperature curve and rose spots are present.	1. These are absent.
2. These are not present in typhoid fever.	2. The detection of the nodules in the painful muscles and inquiry as to the food taken often points to this condition.
3. This is not present.	3. The increase of the eosinophile leukocytes favor trichiniasis.

TYPHOID FEVER.	VARIOLA.
It may be impossible to distinguish between these for several days, as both may present headache and pains in the back.	
1. The onset is usually insidious and gradual.	1. That of variola is more apt to be abrupt.
2. The eruption is unlike that of variola and does not appear before the fifth day and the fever does not decline.	2. The characteristic eruption appears on the third or fourth day, at which time the temperature drops.

TYPHOID FEVER.	YELLOW FEVER.
Pains in the loins and the initial headache are characteristic of both.	
1. Diarrhea and epistaxis are present; the onset is gradual and the symptoms are continuous.	1. Diarrhea and epistaxis are absent; the onset is abrupt and the symptoms remit on the second or third day.
2. The discoloration of the skin is absent.	2. The yellow discoloration is present.
3. The characteristic facies of yellow fever are absent.	3. These are present.
4. A disease of temperate climates.	4. A disease of warm climates.

TYPHOID FEVER.	CEREBRO-SPINAL FEVER.
1. The onset is insidious.	1. The onset is usually abrupt.
2. The temperature pursues a typical course.	2. There is no regularity to the temperature.
3. The eruption is roseolous and does not appear before the fifth day.	3. The eruption is petechial or herpetic and appears before the fourth day.
4. Diarrhea is often present.	4. Constipation is the rule.
5. Seldom any nausea and vomiting.	5. Nausea and vomiting are present.
6. These are absent in typhoid fever.	6. There is retraction of the head, paresthesia and paralysis.
7. The headache is not as severe and disappears when the delirium sets in.	7. The headache is more intense and coexists with delirium.
8. Leukocytosis is not present in uncomplicated typhoid fever.	8. Leukocytosis attends cerebrospinal fever.
9. The ophthalmoscope does not reveal anything pathognomonic.	9. It reveals papillitis (choked disc), optic neuritis.
10. Lumbar puncture reveals nothing out of the usual.	10. May disclose in the arachnoid fluid the specific diplococci.

TYPHOID FEVER.	ACUTE DYSENTERY.
1. If diarrhea is present the stools may not be very frequent; there is a greater amount than in acute dysentery; it is thin and like pea soup.	1. The stools are frequent, small, ineffectual with much blood-streaked mucus.
2. There are the rose-spots, diazo-reaction and agglutinating reaction and temperature curve.	2. These are not present in acute dysentery.
3. Duration is greater than acute dysentery.	3. Of shorter duration.

TYPHOID FEVER.	MALARIAL FEVER.
1. The rose-spots, diarrhea and temperature course are different from what is seen in malarial fever.	1. Not present in malarial fever, intermittent or remittent fever.
2. Typhoid bacillus may be recognized in the blood.	2. Plasmodia malaria in blood.

TYPHOID FEVER.	PYEMIA.
1. The temperature has a definite course.	1. The temperature is irregular, from normal or below, to several degrees above and back to normal or below during the twenty-four hours.
2. No chills.	2. May be recurrent chills and sweats.
3. No definite changes of the polynuclear leukocytes.	3. These are increased.
4. The rose rash, diazo-reaction and the Widal reaction are present.	4. These are lacking, but there may be present typhoid symptoms, diarrhea and cerebral manifestations. The primary focus of suppuration may be detected.

Prognosis.—In young, robust subjects who have been healthy, and in whom no serious complications arise, the prognosis should be favorable. Prolonged and severe diarrhea, extremely high temperature, pronounced nervous symptoms, with coma vigil or stupor, intestinal perforation and intestinal hemorrhages render the prognosis grave. Low temperature, slight diarrhea, or constipation, moderate delirium are favorable, as well as the occurrence of the fever during the winter months in preference to the summer months. Obese subjects bear it badly.

Treatment.—Care should be exercised to prevent the spread of the disease. A direct transmission of the contagion through the air is possible. All discharges should be disinfected and soiled linen should be soaked in a *carbolic acid* solution 1.20 for two hours before being sent to the laundry. *Chlorinated lime*, commercial *hydrochloric acid*, or a solution of *carbolic acid* 1.20 may be employed in the bed pan, that infection of the stool or urine may be overcome. *Corrosive sublimate* coagulates albuminous matter and is not as efficient a disinfectant as considered by many.

The patient should be confined to bed during and following the febrile stage of the disease, till convalescence is well established. The room should be large, and one that is easily ventilated, one in which the light can be modified, and one that is as free from noise as is possible. All hangings and superfluous furniture should be removed. During the summer, ventilation may be accomplished by opening a window of the room. During the winter this may be accomplished by opening the window of an adjoining room. The temperature of the room should be maintained as near 68° F. as possible. During the winter it may be necessary to moisten the air of the room by means of a vessel containing water upon the stove or radiator. The bed should be so placed that the light will come over the head so as not to annoy the patient. If possible, the bed should be one-half, or not more than three-fourths the normal width, that the nurse can reach the patient without difficulty.

It may be advisable to have two beds that the patient may be moved night and morning, and that the bed may be thoroughly aired. The bed covering should not be too heavy. Bed sores should be prevented by perfect cleanliness and careful attention to the points upon which pressure is the greatest, as back of the neck and over the buttocks and sacrum. The sheets should be kept smooth and clean from crumbs as well as moisture contaminated from the rectal or vesical discharges. Means should be employed to keep the patient clean and to harden the skin at the exposed parts. To establish the latter, the patient should be changed from time to time; the parts bathed with *alcohol* or *hamamelis*, thoroughly rubbed with a dry towel and dusted with talcum powder, and an air cushion used to take the pressure off the part.

Meteorism should be closely watched by the physician, as an overdistended, paretic, ulcerated bowel may result in serious complications. Manipulation of the abdomen should be avoided, as well as the use of thick, hard rectal tubes. A large, soft, elastic catheter should be introduced high up into the bowel; to its distil end should be attached a long rubber tube which may be placed higher than the abdomen. If need be, the catheter should be introduced every three or four hours and allowed to remain ten minutes. Puncture of the abdominal wall and the bowel with a needle is not advisable.

When the meteorism first appears, the withholding of all food 10 to 30 hours will relieve it, after which greater care should be exercised in feeding the pa-

tient. A flannel wrung out of hot water and placed upon the abdomen, and then sprinkled with hot water, is usually of service. The use of *terebinthina* internally is also of service and should be studied in these cases with *carbo vegetabilis*, *cinchona* and *nux vomica*.

Early in the disease dorsal decubitus is the best position, while later the position should be changed, lest pulmonary hypostasis should take place. The bowels and bladder should be evacuated when the patient is on his back.

The mouth and teeth should be frequently cleansed and all sordes removed Pure water, or water with a small percentage of *peroxide of hydrogen*, *listerine*, *borolyptol*, *potassium chlorate*, *echinacea* or *baptisia* acts nicely. Pure cold water (four to six quarts a day) should be given at regular intervals. A small amount of fruit juice may be added to the water, or a few drops of lemon juice may be substituted. A weak, cold tea may be allowed in the case of those who are tea drinkers. In the case of those who are used to charged waters, they may be allowed well diluted with pure water. Alcoholic beverages should not be given, except in the cases of those who have been in the habit of imbibing daily; in such cases they should be continued during the fever, otherwise delirium and heart failure may result. In cases of heart failure and general nervous prostration, some form of alcoholic stimulant should be administered.

The diet should be fluid, and during the early stages plenty of pure water is frequently all that is

required, while later milk that is known to be pure may be given. It may be diluted with plain water, mineral water or lime water. If curds of milk appear in the stools, the amount given should be reduced, and broths should be administered. In some cases the milk may be peptonized. Buttermilk, thin barley gruel and albumin, meat broths, ice cream and infant food are serviceable. The patient frequently enjoys a weak lemonade prepared in a fruit jar, into which a fresh egg is broken and then thoroughly shaken. A portion of this is allowed at intervals of three hours.

In spite of the protests of the patient, and the attempts of the kind but ignorant parent, no food but liquid should be allowed for at least one week after the cessation of the fever and the disappearance of the other symptoms. Then semi-solid food should be most carefully introduced. Well cooked rice, the soft part of a well baked apple, egg-nog, toast, scraped beef, soup, baked potatoes, and some meat may be given gradually. Occasionally after the more acute symptoms have subsided, there continues for several weeks a rise of the temperature of from one to three degrees. If there is a decided impairment of the nutrition, it will be found that an increase of the diet will frequently be followed by a return of the temperature to normal.

Hydrotherapy, in the form of baths, is of great service in this disease. In many cases the use of sponge baths, with tepid or cold water, is of the greatest benefit. The bath should be repeated when-

ever the temperature reaches 103° F. The bath should be given by one who is proficient in the work. In ordinary cases a bath twice a day with the water at a temperature of 95° F., followed by an alcohol rub, is of service. If the fever continues high, the bath may be repeated every two or three hours, and continued until the temperature is normal.

Method of Brand or Tubs.—In this method systematic cold bathing is resorted to as early as possible. When the temperature in the axilla reaches 101.3-5° F., a cold bath is given and repeated every three hours, the water being at the temperature of about 70° F. The patient should be immersed in the tub, the water covering all but the head. Then water of a lower temperature should be added. Gentle friction should be applied constantly by the attendant, and the patient should be encouraged to do likewise, to all parts except the abdomen. The duration of the bath is fifteen minutes. An alcoholic stimulant should be administered to the patient before and after the bath. When the bath is finished, the patient should be lifted back to his bed and covered with woolen blankets. The temperature should be taken one-half hour afterward. The author is not in favor of this method, and believes that sponging with tepid water or cool packs is preferable.

Bathing in cold water and the Brand Method is contraindicated when there is the slightest indication of intestinal hemorrhage, peritonitis, perforation, weak heart action, pronounced arterio-sclerosis, senile pneumonia, pleuritic effusion, etc. The presence of the

menstrual period and pregnancy do not contraindicate the procedure.

In sponge baths a small amount of alcohol, bicarbonate of soda, or vinegar, may be added to the bathing water. When not being sponged, a cloth wrung out of cool water and placed over the patient's abdomen, or a wet pack extending from the axilla to the groin, is also beneficial in controlling the temperature. The portion of the body not being sponged should be covered.

Intestinal Hemorrhage.—This occurs in from 5 to 10 per cent. of the cases. The avoidance of irritating cathartics has much to do in the prevention of the hemorrhages. When hemorrhage has once appeared, the patient should be kept perfectly quiet and all food should be withheld for twenty-four to thirty-six hours. The foot of the bed should be elevated, and ice-bags or a Leiter's coil placed over the abdomen, while hot water-bags or cloths wrung out of hot water should be applied to the extremities. To relieve the thirst the patient may be allowed to suck small pieces of ice, or use cold water or cold tea in teaspoonful doses. Some advocate the use of opium, and especially the preparation known as svapnia, one grain of which is administered every hour till the patient is quiet, it usually requiring two doses.

Ten to twelve ounces of a 10 per cent. gelatin given by the mouth during the twenty-four hours is believed to have an influence in increasing the coagulability of the blood. Twenty to thirty grains of

the *chloride of calcium*, repeated every two to four hours, also assists in the process. It should be remembered, however, that in these cases the hemorrhage is dependent upon an ulceration, and that the blood during typhoid fever is not specially lacking in its power of coagulability. A hypodermic injection of *adrenalin chloride*, 1.0 to 1.5 cc. of a 1 to 1,000 solution, is also of service. The administration of *ergot* in certain cases has been followed by most excellent results. *Hydrastis*, *terebinthina*, *ipecacuanha*, *hamamelis*, *trillium* and *alumen* internally has each at times exercised an influence.

Heart failure should be managed by absolute quiet in the recumbent position. If the patient has been accustomed to alcoholic stimulants in health, they may be employed, in other cases they will not produce the desired effect. *Naja*, *lachesis*, *strychnine*, *strophanthus*, *digitalis*, *aromatic spirits of ammonia* may be of service. It is well to watch the effect of letting the patient out of bed, and if edema of the legs or rapidity of the heart follows he should be put back to bed and kept there for weeks or months, that compensation may be thoroughly restored. Extreme asthenia may require an intravenous infusion or hypodermatic injection of a normal salt solution. If the danger is not so imminent, salt may be introduced by a hypodermic injection. If the danger is still less imminent, it may be introduced by a high rectal enema.

When perforation occurs, all forms of food should be discontinued and surgical treatment instituted at

once. The presence of shock does not contraindicate an operation, as the administration of ether removes the shock in these patients, the character of the pulse improving and the color returning to the face. Following the operation, the head of the bed should be but slightly, if any, elevated, as the patients are accustomed to lie flat on their backs. If vomiting becomes an annoying symptom, lavage of the stomach should be instituted. When the vomiting has ceased, the diet should be such as is employed following operations for bowel perforation in general.

Constipation is in some cases a feature that should not be overlooked. It is not advisable to allow the bowels to go over one day without a movement. In some cases the well selected remedy will correct this condition; when it does not, an enema of soap suds or salt and water, a tablespoonful to the quart, should be used. In some cases repeated enemata will be required to thoroughly evacuate the bowels. In those cases in which the above enemata are not sufficient, a half pint of olive oil should be carried well up into the bowel and allowed to remain. In a short time a normal movement will take place.

Gelsemium.—This is one of the remedies so frequently indicated during the early stages of the disease. The patient is of a nervous, excitable, hysterical type, in whom the nervous symptoms predominate, and he complains of a sensation of chilliness and shivering. There is frequently a partial paresis of the motor nerves of both the voluntary and involuntary muscles, and, as a result, there is great debility

and muscular soreness, weakness and prostration, so that the legs and arms tremble when moving. The face presents a suffused redness. If headache is present, it is more a sensation of fulness, with dullness of the mental faculties, and incoherent mild delirium, and while the patient may appear sleepy, there is a condition of insomnia present.

Bryonia alba.—This remedy may be indicated at any period during the course of the disease, but it is most frequently before the intestinal symptoms develop. When it is indicated, there is aggravation from motion, relief from rest, and the patient is worse at night. There is violent headache, as if the head would split open. This is aggravated by motion, as opening the eyes, and is relieved by closing the eyes and pressure about the head. The lips are parched and dry. The tongue is coated white or yellow. There is great thirst; the bowels are constipated; the stools are hard, dry and brown. There is a dry cough, which is apt to be attended with sharp stitching pains. There is a general tired feeling, with a sensation of soreness all over.

Baptisia.—This is truly the peer of all remedies. There is a sensation as if all the muscles were bruised, and the patient is debilitated. There is low muttering delirium; the head seems scattered about, and the patient tosses about the bed to get himself together. The face presents a dark red, besotted expression; the tongue is coated brown, and is dry, especially in the centre. The breath is very offensive, and there are sordes upon the teeth. Stools are

diarrheic in character and horribly offensive; in fact, all the discharges are very offensive. The pulse is full and soft.

Eucalyptus.—Australia is the home of this remedy. It has been employed extensively in fevers of a low septic type. It produces drowsiness, loss of muscular power, cold skin, pale lips and cheeks, feeble pulse and diarrhea of a thin, watery, offensive character. The patient complains of a dull, congestive headache.

Echinacea angustifolia.—This remedy should be borne in mind when low septic conditions, such as are observed in certain cases of typhoid fever, are under consideration. If selected early in the case, it has a decided influence in preventing the development of the septic conditions and the destructive and pernicious influences of the invading host which result in an impaired condition of the blood. It assists elimination as well as assimilation and nutrition. There are headaches, with periodical flushing of the face, with alternate flashes of heat and chilliness over the back, the patient being profoundly prostrated.

Arnica montana.—This remedy is indicated in those cases in which the patient complains of a general bruised or sore feeling, caused by more or less passive, venous congestion. There are drowsiness and mental apathy. The head appears hot, while the rest of the body is much cooler. At times ecchymoses appear at various parts of the body. The case may assume a markedly septic state with putrid breath and apathetic conditions.

Rhus toxicodendron.—This remedy is indicated in

those in which there is low, mild delirium; the patient is of a restless mood; there is great apprehension, especially at night, so that he cannot remain in bed. Should there be marked prostration and weakness, the restlessness is not so apparent. He does not grasp what is said to him readily, showing the mental stupor. The headache is often severe, and is frequently relieved by epistaxis. The tongue is dark brown, dry, cracked and frequently bleeds. Diarrhea is frequently present; the stools are of a yellowish brown color, very offensive, and frequently involuntary. There is frequently a backache complained of; it is usually severe and is temporarily relieved by changing the position. It is often indicated when pneumonia becomes a complication.

Hyoscyamus.—This remedy should be studied in cases characterized by an active muttering delirium and a general twitching of the tendons. There is a continuous picking at the bed clothes and a grasping at imaginary objects in the air.

Hyoscine hydrobromate.—This preparation in grain doses of the 3x to 4x dilution will in some cases render more efficient service than the *hyoscyamus.* Care should be exercised that the dose is not too large, or the case will be aggravated.

Agaricus or *agaricin.*—These remedies should be studied in cases in which there is more or less twitching of the muscles, tremor, restlessness and a constant desire to get out of bed; the patient is continually talking.

Stramonium.—This remedy is indicated in cases

characterized by an active, noisy delirium. The patient may sing, or be raving; first sees one subject, then another. There is profuse perspiration and an extreme exhaustion. *Morphine sulph.*, ¼ grain each night; *chloral hydrate* or *potassium bromide* are employed in cases of delirium, but their action is depressing, and they should be avoided.

Phosphoric acid.—This remedy should be studied in cases of those who are worn out by close confinement to their vocations. They complain of a heavy, tired feeling of the body in general, but of the extremities in particular. There is great mental depression and apathy. It should be studied in those cases in which nephritis and cystitis develop as complications. The tongue is pale and dry, and epistaxis is common, but it affords the patient no relief. The abdomen is distended and there is gurgling in the intestines and diarrhea. The stools are watery in character and of a yellowish or greenish color and may contain undigested food and be the consistence of thin gruel.

Carbo vegetabilis.—This remedy may be of service in the stage of collapse. There is stupor, out of which the patient can scarcely be aroused. The pupils no longer react to light; the eye has lost its lustre and the hearing is impaired or lost. The face is pale, sunken and cold; there are hemorrhages from the mouth and nose; the tongue may be moist, or dry, cracked or bluish, or pale in color. The abdomen is distended and there is loud rumbling and gurgling of gas in the intestines. There are collec-

tions of secretions in the bronchial tubes which result in loud rattling when breathing. The face is cold, pale and is covered with a cold perspiration.

Terebinthina.—This remedy should be borne in mind in the later stages, when the tongue is of bright red color, or the coating has peeled off in patches, presenting bright red spots here and there, or the whole substance clears off at once. Ulceration of the bowels has now taken place; there may be hemorrhages from the bowels, with blood of a bright red color. Urination is slightly painful; there is tenderness in the renal region; the urine is apt to be smoky and contains albumin. The patient complains of a sensation of dizziness, fullness and flushing of the face, and there is extreme tympanites. There is great prostration and loss of flesh.

Belladonna.—This remedy is indicated in those cases in which headache is a most annoying symptom. In connection with the typhoid symptoms, the head is hot and painful; the face flushed, the eyes wild and staring, while the pupils are dilated. The pulse is full and bounding, and the patient sleepy, but cannot sleep. In some cases in which the throbbing is the prominent symptom, *glonoin* should be studied, while in others *spigelia* or *mezereum* should be remembered. The coal tar products, as *antipyrin*, *acetanilid*, etc., are injurious and should be avoided

Lachesis.—This remedy should be remembered in those cases in which the patient feels worse after sleep. He is restless and loquacious, talking on one subject then another. He is stupid, the tongue dry, red or blackish, with a red tip and cracks in it which

bleed, and it trembles when protruded. The abdomen is distended and sensitive to pressure, and the stools very offensive.

Arsenicum album.—This remedy is effective in those cases in which the septic symptoms develop early and rapidly in the history of the case The patient complains of great weakness and prostration, especially from the slightest exertion, which produces a sensation of faintness and restlessness. The tongue and tip are very dry. The mouth is ulcerated and the pulse small, frequent and often irregular. The stools are frequent, watery, dark and putrid, and the urine is scanty, high colored and of a cadaverous odor. The patient is greatly emaciated and there is a tendency to hemorrhages from all the orifices of the body.

Muriatic acid.—This remedy is to be studied in cases characterized by pronounced asthenia, restlessness, stupor, debility, muttering delirium and a tendency to slide down to the foot of the bed. There is ulceration of the mucous surfaces and great fetor of the breath and putridity of the discharges. The mouth and tongue are excessively dry. There is present a continuous, moderate active delirium. The pulse is soft and rapid. The stools and urine pass involuntarily, or the bowels move involuntarily while the patient passes urine.

Nitric acid.—This remedy is of value in those cases in which there are indications of extensive intestinal ulceration as well as of the mouth. The patient presents a pale, exhausted appearance. He is anxious, irritable, and is positive he will not recover. The

abdomen is greatly distended and is extremely tender to pressure. The stools are green, fetid, acrid, bloody and stringy, and the passages may be attended with tenesmus.

Mercurius solubilis or *vivus.*—These remedies should be remembered when, together with other symptoms, hepatic congestion occurs with great sensitiveness in the gastric, hepatic and inguinal regions and a slight jaundice. The tongue is flabby and moist; the stools frequent, greenish, slimy and mixed with blood and there is more or less tenesmus. The symptoms assume more of the dysentery type, with indications of peritonitis.

Mercurius corrosivus should be studied. *Chelidonium* and *carduus* should be remembered when the liver is involved.

Cinchona.—This remedy should be remembered when convalescence is slow, and the case has been characterized by diarrhea and the loss of much fluid. The lower potencies are preferable.

Intestinal antiseptics have, and are still being, multiplied, in the hope of finding one that may meet all that might be desired of such a medicament. To the physician well grounded in the symptomatology, such methods should have no attractions. The selection of a proper diet, the avoidance of all intestinal irritants, and the thorough removal of toxic fecal material if necessary, by means of rectal and sigmoid flushing, leave nothing to be desired. It should be remembered that in the use of the intestinal antiseptic nothing should be anticipated beyond the control of the intestinal fermentation.

PARATYPHOID FEVER.

This is an infectious type of fever that is dependent upon an organism which, while it closely resembles the specific bacillus of enteric fever, yet it is midway between this and those of the colon group.

While the symptoms have many of the features that are characteristic of typhoid fever, the prodromal symptoms are of shorter duration and may be abrupt, while the temperature rises quickly and has not the gradual evening elevation which characterizes the typical typhoid curve. The enlarged spleen, the rose-colored spots, and the nervous symptoms of typhoid are usually present, but in a mild form. The duration of the fever is usually shorter than typhoid and it is apt to terminate by crisis.

The convalescence is usually more prompt and relapses are not present. The Widal reaction is not present.

The treatment is very similar to typhoid fever, apart from the fact that gentle irrigation of the colon is frequently of great service.

TYPHUS FEVER.

Synonyms.—Ship Fever; Jail Fever; Hospital Fever; Putrid Spotted Fever; Black Death Fever.

Definition.—This is an acute, specific, contagious, infectious disease, characterized by a typical rash, nervous symptoms and a high temperature, which terminates by crisis in about two weeks.

Etiology.—While one of the great scourges of the past, it is becoming rare. Its specific cause has not been determined, but it is considered to be due to a specific micro-organism. Overcrowding of houses, filth, scarcity of food, poor ventilation, and famine, are considered as predisposing causes. It attacks both sexes and one attack confers immunity.

Pathology.—There is no constant post-mortem lesion. The spleen and lymph glands are enlarged and softened, and the kidneys and liver are increased in size. The myocardium shows degenerative changes. The blood is dark and fluid, while the petechial eruption remains after death. There are no intestinal ulcers. The period of incubation is about two weeks.

Symptoms.—While there may be prodromal symptoms of malaise, the onset is usually sudden, the disease beginning with a severe chill, nausea, vomiting and epigastric pain and an abrupt rise of the temperature to 104° F. or 105° F. There are severe headache and backache, pain over the body, and great prostration. The tongue is coated and dry; the bowels are

constipated; the eyes are suffused; the pupils contracted and bronchitis is common. Delirium soon appears, and the liver and spleen are enlarged and painful upon palpation. A mouse-like odor exudes from the body. The pulse soon becomes weak and dicrotic, while the first sound of the heart becomes indistinct and a systolic murmur appears at the apex.

From the third to the fifth day an eruption appears upon the chest and abdomen, which speedily extends to the face, the extremities and the whole body. There is a mottling of the skin, which consists of a light and dark purple, which may become lighter upon pressure, and is the seat of subcutaneous hemorrhages. In connection with this, there is also a petechial eruption of pinkish color which resembles the rash of enteric fever. At first these disappear upon pressure, while later they are permanent, become hemorrhagic and, like the mottling of the skin, persist after death. The urine is lessened in quantity, the specific gravity being high, and the solids increased.

Complications.—Hypostatic congestion of the lungs, pleurisy, pleuro-pneumonia and gangrene of the lungs are the most common complications.

Sequelæ.—*Otitis media*, *thrombosis* of the veins and peripheral *neuritis* may occur.

Diagnosis.—This is based upon the history of the epidemic, the sudden onset, the high temperature, the appearance of the rash about the fifth day, the nervous symptoms and the prostration.

It should be distinguished from typhoid and relapsing fevers and measles.

TYPHUS FEVER.	TYPHOID FEVER.
1. The intestinal symptoms are not prominent, usually constipation.	1. The intestinal symptoms are prominent, tympanites and pea soup diarrhea present.
2. Fever appears suddenly with chill, increasing with headache.	2. The fever appears slowly, and there is a typical temperature curve.
3. The eruption appears from the third to the fifth day, does not disappear upon pressure and persists at post-mortem.	3. The eruption appears later, and disappears upon pressure.
4. Not present.	4. Widal reaction present.
5. Duration 14 days, ends by crisis.	5. Duration 21 to 30 days, ends by lysis.

TYPHUS FEVER.	RELAPSING FEVER.
1. The blood becomes dark and shows disintegration.	1. The blood shows the spirillum of Obermeier.
2. The fever is of the continuous type.	2. This is interrupted by intermission; a periodic type.
3. There are marked nervous symptoms as well as the exanthem.	3. These are wanting.

TYPHUS FEVER.	MEASLES.
1. The catarrhal symptoms are absent.	1. They are present.
2. Eruption on the face is spare.	2. There is eruption on the face.
3. Nervous symptoms are prominent.	3. Not present.

Prognosis.—This is not good. The death rate is about 30 per cent. The unfavorable symptoms are quickened respiration, a soft, compressible, accelerated pulse, muscular tremors, hiccough and convulsions.

Treatment.—As this is a most contagious disease,

the prophylactic treatment is of the greatest importance. So far as the patient is concerned, all those conditions which result in a lowering of the bodily resistance should receive attention; as alcoholism, filth, improper food, poverty, hunger, overcrowding and poor ventilation, social depravity, etc. Quarantine should be maintained against those who come from infected ports, and if they have been exposed they should be isolated for at least two weeks. All clothing, furniture and bedding should be thoroughly disinfected, and they themselves should have a thorough bath.

All excreta should be disinfected.

The patient should be placed in bed in a room where ventilation is perfect, at least 2,000 cubic feet of space for each person. If possible, two beds should be employed, one during the day and one during the night. The patient's head should be kept cool and the feet warm.

The diet should be such as is employed for febrile conditions. It should be one that is nourishing, easily digested and fluid or semi-solid. Milk, eggs, broths, arrowroot, sago, bread, tea and coffee may be allowed. The patient should be fed every three hours. Water should be allowed in abundance. The mouth, nose and throat should be kept clean; the first being cleaned after each meal by means of listerine, or any mild antiseptic solution. The dependent parts of the body should be watched, that bed sores do not develop. Sponging with cool water or the cool pack may be used if the patient reacts well. In

some cases it will be found of service to place the patient in a continuous tepid water bath for a few hours. The use of antipyretics should be avoided, as their action on the blood is pernicious. The heart should be watched carefully, and weakness of the organ met at once, if needed, by diffusible stimulants, as alcohol, camphor, strychnine, etc. If diarrhea is disturbing, boiled milk should be employed. Meteorism may become annoying and should be relieved as directed under typhoid fever. Care should be exercised that paralytic retention of the urine does not take place.

In severe cases collapse may appear about the end of the second week. This should be anticipated if possible by the use of such stimulants as have been mentioned, together with from 15 to 30 minims of 10 per cent. *camphorated olive oil*, administered hypodermatically. In extreme cases it may have to be repeated in 30 minutes.

Headache is often present and may be relieved by a cool or cold application to the head. Thrombosis should be managed by raising and supporting the extremities upon pillows and an application along the course of the blood-vessel of a pad soaked in equal parts *glycerine* and *hamamelis*. This should be retained in position by means of a bandage.

Baptisia tinctoria should be studied where there is great prostration and debility, with a tendency to decomposition of the fluids of the body and a sensation of being bruised all over. The face presents a dark red, besotted expression; the tongue is coated brown,

especially in the center. The breath is offensive; there are sordes upon the teeth and the patient presents a septic condition.

Phosphoric acid.—This is of service where there is great nervous depression with mental debility and great physical weakness. The patient is too weak to talk, or think; he is stupid; there is complete apathy, and he lies like a log, utterly regardless of his surroundings.

Phosphorus.—This remedy is valuable in a low, adynamic state. There is no thirst and the perspiration is copious and exhausting. The symptoms are worse from 4 to 5 P. M., and the lungs show more or less congestion and frequently hepatization.

Rhus toxicodendron should be studied in cases in which there is great restlessness, anxiety and apprehensions, must change position often to obtain relief from pain.

Agaricus should be studied in connection with the restlessness; there is muscular twitching, delirium and tremor.

Opium should be studied when stupor is a marked characteristic.

Hyoscyamus and *stramonium* should be carefully compared when delirium is the great characteristic.

MALTA FEVER.

Synonyms.—Undulant Fever, Mediterranean Fever, also known as Rock Fever in Gibraltar and as Neapolitan Fever in Italy and Sicily.

Definition.—This is an acute infectious disease, characterized by an irregular temperature, profuse sweats, rheumatic pains, arthritis, enlarged spleen, and a tendency to relapse.

Etiology.—It prevails in summer, attacks young adults and is favored by insanitary conditions. In all cases that have come to autopsy, an organism, the micrococcus melitensis, has been found in the spleen, but it has not, as yet, been isolated from the blood. When inoculated in animals, the micrococcus has produced a similar disease.

Pathology.—No characteristic morbid lesion has been demonstrated, beyond the splenic enlargement.

Symptoms.—The period of incubation is from six to ten days. The advent of the disease is gradual and without chill or any marked rise of the temperature. The patient complains of anorexia, malaise, headache, and restlessness. These symptoms continue for a period of from six to twenty days, when the temperature returns to normal and remains so from two to four days, when it again rises, accompanied with a chill and the symptoms just enumerated. The relapse is of from four to six weeks' duration, at which time a second remission occurs. The

duration of this may be from one to two weeks, when it is succeeded by a second relapse in which the symptoms are more severe than in the first. The following symptoms are also present: sweats, joint pains, effusions, constipation, inflammation of the fibrous tissues, and orchitis. Following this there is a third remission, then a third relapse, during which, in connection with the symptoms already outlined, there are the following: high fever, night sweats and severe pains. The spleen is now enlarged and usually tender.

The recurrent attacks of fever and pain render the patient exhausted and the disease may prove fatal through the pulmonary and cardiac complications. There is a malignant type in which death may result in from seven to ten days; an undulatory type, which is the common type, and the intermittent type, in which the patient may have a slight rise of fever each night, but at any time the disease may take on a more serious form. One attack usually confers immunity for several years at least.

Diagnosis.—This is based upon the study of the clinical symptoms as outlined. Malta fever has to be differentiated from typhoid and malaria fevers.

Prognosis.—This is favorable. The death rate is estimated 2 per cent. The duration of the disease and the loss of time is an important factor.

Treatment.—The patient should be kept in bed during the febrile stages. The bowels should be kept open. Sufficient water should be given to keep the kidneys active. When the temperature reaches 103°

F., the patient should be sponged with cool water till it is reduced. When the fever is 103° F., or over, the diet should be fluid milk, for example, and when the fever is lower, easily digested foods should be allowed, as cereals, eggs, bread, milk, broth, rice, fish and meats.

During convalescence, the patient should be kept in the fresh air, and if his condition is such as to allow it, a change of climate is beneficial.

The remedies to be studied are such as are indicated in continuous fevers with rheumatic complications.

RELAPSING FEVER.

Synonyms.—Recurrent Typhus; Famine Fever; Seven Day Fever; Spirillum Fever; Bilious Typhoid.

Definition.—This is an acute, specific infectious disease, characterized by a febrile stage of from six to seven days' duration, following a period during which the temperature is normal, when the fever returns for a similar period as before. This may be repeated several times.

Etiology.—Unsanitary conditions, overcrowding and those conditions which favor typhus are present.

The specific cause is the spirochæta of Obermier, which is found in the blood during febrile stages. It is believed that the infection is carried by means of the suctional insects as the bed bug.

Pathology.—There are no constant changes to be noticed after death from this disease. During the febrile period the spleen is enlarged, the skin is jaundiced and ecchymosed. The bone marrow shows hyperplasia.

Symptoms.—While the period of incubation is about seven days, in some cases the symptoms may appear within a day or two following infection. The onset of the disease is indicated by a chill, followed by a fever which may within a few hours reach 104° F., or 105° F. Accompanying this there is nausea and vomiting, sweating, malaise and intense pain in

the head, back and limbs. In children the disease may be ushered in by a convulsion. The pulse rate is increased, jaundice present, the spleen enlarged, and in some cases ruptures. The skin may become mottled and ecchymosed, and herpes may appear upon the lips. The liver may be enlarged. The leukocytes are increased, and during the fever the blood contains the spirochæta.

From the third to the tenth day a crisis occurs, in which the temperature falls to normal or below. This is attended with a profuse perspiration, occasionally a nosebleed or diarrhea, and a general amelioration of all the symptoms, and within a day or two the patient feels normal. After about one week the paroxysm is repeated. The second one is similar to the first, but is of shorter duration. There may be three or four such paroxysms; at times the patient recovers following the first.

Complications.—These are nephritis, pneumonia, hematuria, hematemesis, infarct and rupture of the spleen and abortion in pregnant women.

It should be distinguished from typhoid, yellow and remittent malarial fevers.

RELAPSING FEVER.	TYPHOID FEVER.
1. The onset is sudden.	1. The onset is gradual.
2. The chill and crisis. The extremely enlarged spleen is characteristic.	2. There is seldom a chill, and the enlargement of the spleen is moderate.
3. The blood contains the spirilla.	3. The blood shows the Widal reaction.
RELAPSING FEVER.	**YELLOW FEVER.**
1. The presence of the spirilla and the enlarged spleen.	1. These are not present.
2. No "black vomit."	2. Is usually present.

Prognosis.—Except in the case of the aged and the enfeebled, the prognosis is favorable.

Treatment.—Prophylactic treatment is of service. During the fever the case should be confined to bed and managed as in typhoid fever. If collapse is a prominent feature, saline transfusions are of service. The diet should be regulated according to the condition of the bowels, but one that is easily digested and highly nutritious should be selected. If diarrhea is present, boiled milk, soups, cocoa, eggs and predigested foods are of service. In ordinary cases, fluids should be given in abundance, as rice and barley water, to alleviate the thirst. During the febrile period, a supporting diet should be employed. Heart failure should be guarded against by the administration of wine. Ether, hypodermatically, is of service in urgent cases.

Bryonia alba.—This remedy is indicated in those cases in which the aggravation from motion is a prominent symptom. The pains are tearing and stitching in character, and are worse at night and from motion. The bowels are usually constipated and the stools large, hard, dark and dry, as if burnt.

Rhus toxicodendron.—This remedy should be studied in those cases in which the patient is restless and cannot remain quiet in one position, as it aggravates the pains; he feels better temporarily after moving; he is worse after midnight.

Baptisia tinctoria.—This remedy should be studied in those cases in which there is great prostration, a tendency to decomposition of all the fluids and the

patient complains of a general soreness which renders him restless.

Aconite and *eupatorium perfoliatum* have been advised rather upon theoretical grounds, but there is evidence of their clinical worth.

YELLOW FEVER.

Definition. — This is an acute infectious disease, characterized by fever, jaundice, a tendency to hemorrhages and collapse; it may appear epidemically or endemically.

Etiology.—The specific cause has not been determined. It is transmitted from the infected subject by the mosquito, *Stegomyia fasciata*. Long continued high temperature, atmospheric humidity, unhygienic conditions, filth, overcrowding, stagnant water and bad ventilation are predisposing factors, while freezing weather controls its spread.

Pathology.—In some cases there is pronounced jaundice, while in others there is simply an icteric tinge of the skin. Subcutaneous, mucous and serous hemorrhages are frequent, especially into the mucous surface of the stomach. There is fatty degeneration of the liver, while the kidneys show degeneration of the cells of the convoluted tubules, many of the latter being blocked with epithelial cells and the urine suppressed.

Symptoms.—The period of incubation varies from one day to two weeks, or over. The onset is sudden, and consists of a severe headache with pains in the legs and back. The skin is hot and dry; the bowels are constipated; nausea and vomiting, which is present from the beginning, gradually becomes more severe. The face is suffused and the conjunctiva is

injected and becomes jaundiced within a few days. The temperature rises quickly and high, remains so for two or three days, when it falls by lysis, and there is a remission of varying duration. Then the fever returns; the pulse at first is moderately rapid, but it soon decreases in rapidity, and while the temperature remains high, the pulse drops below normal. Upon the second or third day albuminuria appears and continues till the end of convalescence. Gastric irritability is present from the first. In mild cases the vomit consists of watery material, while as the secondary stage appears, it contains more blood, which is altered in appearance and known as the "black vomit."

Diagnosis.—This is based upon the knowledge of the presence of an epidemic, the yellow discoloration of the skin and the "black vomit," the slow pulse and high temperature, the albuminuria and suppression of the urine and the typical facial expression.

It should be distinguished from malarial fever and dengue.

YELLOW FEVER.	MALARIAL FEVER.
1. Remission of the fever is in about two days.	1. In the remittent types of malarial fever, the remission is earlier.
2. The chill is slight.	2. The chill is more intense.
3. The blood contains no malarial parasites.	3. These are present.
4. The typical facial expression, slow pulse and early appearance of albumin are characteristic.	4. Are not present.
5. It is epidemic.	5. It is endemic.
6. It is a disease of a single paroxysm.	6. It is a disease of repeated paroxysms.

YELLOW FEVER.	DENGUE.
1. Jaundice and hemorrhages are early symptoms.	1. The former is absent, while the latter may appear late.
2. The pain in the joints and bones does not appear so suddenly.	2. Appears suddenly.
3. The pulse rate does not keep with the temperature.	3. Pulse rate is in accord with the temperature.
4. Albuminuria is present.	4. Not a part of the disease.

Prognosis.—This is unfavorable. The unfavorable symptoms are jaundice, hemorrhage, a flowing pulse, high temperature. In the weak, poorly nourished, alcoholic subject, the chances of recovery are poor, as well as in those who show profound mental and urinary symptoms. The "black vomit" is not a sign of death.

Treatment.—The patient should be protected from the mosquito that conveys the infection. Means should be adopted to destroy the mosquitoes and prevent them from entering the house. They can be destroyed in a house by sulphur fumigation and prevented from entering by means of screens, and the patient should be surrounded by netting. While many believe that the disease is not transmitted apart from the mosquito, yet it is well to thoroughly disinfect all clothing and the room in which the patient has been nursed.

The patient should be confined to bed and moved as little as possible, and the bowels and bladder should receive careful attention. It should be known that the urine is passed at regular intervals, and if it is not, the catheter should be employed. The linen should be changed that the patient may be kept clean,

and yet he should be moved as little as possible in making the change. The head should not be raised in giving food or medicine.

Frequent tepid baths to keep the skin active are beneficial. If the temperature is high, cool or cold sponging may be used, while for prominent uremic symptoms hot baths or packs are indicated. If the vomiting is persistent and difficult to control, small pellets of ice on the tongue will frequently relieve. A hot mustard foot bath at the beginning of the disease, with cool or cold ice-bags to the head, are often of service.

High rectal irrigations of hot (110° F.), normal salt solution are frequently of service when there is marked toxemia, and the kidneys and the circulatory system are not functionating normally.

The patient should be kept in bed till the kidneys and the heart have resumed their normal condition and all indications of prostration have disappeared. During the height of the disease it will be found beneficial to feed the patient by the rectum.

Aconitum napellus.—This remedy should be studied during the first stage following the chill, when the patient is restless, vomits and is prostrated. The skin is dry and burning hot; the pulse is full, high tension and rapid, and there is violent thirst and headache. If the patient is seen during the stage of chill, camphor should be studied.

Belladonna should be remembered in those cases with a scarlet red appearance of the face, with throbbing of the carotids and cerebral congestion. The

pupils are dilated, the eyes red and sparkling, and there is nausea and vomiting.

Bryonia alba.—This remedy should be remembered when following the cerebro-spinal symptoms and the gastric symptoms become more pronounced. The tongue is coated yellow and the lips are parched and dry. There is a severe splitting headache and the patient is irritable and vomits.

Argentum nitricum should be thought of when there is vomiting of a brownish material which is mixed with coffee-ground like flakes.

Ipecacuanha is indicated when there is persistent nausea and vomiting of a glairy mucus. There is dryness of the throat, and after each period of vomiting an inclination to sleep.

Veratrum album.—This remedy should be studied when there is vomiting, with abdominal pains. The tongue is coated, the voice feeble, there is unquenchable thirst for cold drinks and the forehead is covered with a cold perspiration.

Antimonium tartaricum should be remembered in those cases with prolonged incessant nausea, which is attended with great faintness and vomiting of mucus and bile.

Crotalus horridus should be studied when there are hemorrhages from all the orifices of the body and there may be a bloody sweat. Clinically this has been found a most important remedy.

Lachesis is indicated in those cases in which there is a low delirium, the speech difficult, the tongue dry, brown and trembling, the pulse weak and irregular and the urine is dark.

Cantharis.—This remedy is used when there is suppression of the urine, coldness of the hands and feet, and there are burning pains in the stomach.

Arsenicum album should be remembered when there is great and rapid sinking of the vital forces.

The pulse is small and tremulous. The skin is cold and covered with a clammy perspiration. There is nausea and vomiting of a brown turbid material.

Coffea and *hyoscyamus* are useful for insomnia and general nervousness.

INFLUENZA.

Synonym.—La Grippe.

Definition.—This is an acute contagious pandemic disease, due to the bacillus of Pfeiffer. (Bacillus Pfeifferis.)

Etiology.—The conditions under which it develops are not known. While all are attacked, the infirm and those of a nervous temperament show a peculiar tendency to it. The proportion of children affected is less than that of adults. It is not self-protective, and an individual may suffer from two or more attacks during the same epidemic. Unhygienic surroundings favor its development. It prevails during all seasons and invades all altitudes. It extends from place to place with great rapidity, following the lines of commerce to a great extent. While the period of its prevalence in a given locality varies, its usual duration is from one to two months. The bacillus is found in the nasal and bronchial secretions of those affected. It is probable that the germ is conveyed from the sick to the healthy by close association and by the inspired air.

Pathology.—The structural changes consist of a general congestion of the capillaries, and a catarrhal condition of the air passages and bronchial tubes; the latter often containing a light mucus, or a thick muco-purulent material. The catarrhal process may involve the stomach and intestines. In some cases

the bronchial and mesenteric glands are enlarged and softened. The spleen may also show enlargement.

Symptoms.—There may have been a feeling of malaise for a day or two, but frequently the first thing noticed is a chilliness, or it may be a severe rigor; while in other cases its advent is announced by a violent aching of the head and eyeballs, which may appear instantaneously. This is followed by a fever that is as variable as the chill. The temperature may be elevated from 1° to 6°. The attack may last from one day to a week or longer. Appearing with the chill and accompanying the fever, there is a severe headache, and usually an aching in all portions of the body, which is accompanied by more or less prostration. The tongue is tremulous, thickly coated, creamy white, flabby and indented by teeth. In some cases there may be a delirium, while in others there appears about the second day a profuse sweat.

The other symptoms vary according to the type of the disease. In the respiratory type there is coryza, pharyngitis and bronchitis, together with the marked prostration and general aching and drowsiness. During the course of this form broncho-pneumonia often develops, when the cough is violent, paroxysmal and at times very persistent.

The nervous type is characterized by slight rise of the temperature, severe headache, great weakness and excruciating pains in the back and limbs. The gastro-intestinal type is characterized by nausea and vomiting, profuse watery evacuations, and severe abdominal pains may result in collapse. In the typhoid

type the fever is continuous, there is delirium, the tongue is dry and brown and the case is often mistaken for typhoid fever. The rheumatic type is indicated by severe pains all over the body; but there are no changes in the joints or about the nerve trunks. In other cases there are chills and fever that remits, or intermits, that may be mistaken for malaria.

There is nothing about the pulse that is characteristic of this disease. The digestive system is more or less disturbed. This is pronounced in the gastro-intestinal type of the disease. The cough in many cases is distressing, being hard, dry and racking at first, while later it is attended with scant muco-purulent expectoration. It is worse toward night. Cases are met with where there is no cough. The headache, as mentioned, is often distressing and during the early stages is usually confined to the frontal sinuses and nasal ducts, but may extend to the face and neck. It may be limited to one portion of the head. It is frequently very severe, and is worse toward night.

Diagnosis.—The diagnosis is based upon the prevalence of an epidemic, the suddenness of the onset, the early and pronounced asthenia, the headache, severe aches and pains in the bones and the marked nervous symptoms. A microscopical examination of the bronchial secretion is at times conclusive.

Complications.—Uncomplicated cases of influenza are seldom a cause of death in those who were previously healthy. Those at the extremes of life, also those with preëxisting diseases, as nephritis, fatty

heart, phthisis, emphysema and chronic bronchitis, stand the disease poorly. These cases are subject to relapses which may be more severe than the primary attack. The severity of the prevailing epidemic must always be taken into consideration.

The complications are connected with the respiratory system to a very great extent, and are in the form of broncho-pneumonia, which usually appears about the fifth day.

Croupous pneumonia is a late and infrequent complication. It often involves both lungs and terminates by lysis as often as by crisis. Fever is not always present during the attack; there is marked prostration, with a low delirium and cardiac asthenia. Pleurisy may be present, and often terminates in empyema. The heart frequently suffers both during and after the attack. Its nutrition and innervation are so deranged that cardiac asthenia results. There are no evidences of an inflammatory process about the heart, and the murmur noticed only during an attack is hemic in origin.

Cerebro-spinal meningitis, with a severe headache, convulsions, delirium and stupor, is an occasional complication. The most constant sequela is a general asthenia both of mind and body. This bears no definite relation to the severity of the attack; as light attacks are often followed by a profound asthenia. A proportion of the cases is followed by a bronchitis, which in some cases, although attended by a tenacious expectoration, soon clears up, while in other cases it becomes chronic and is a common sequela;

it is frequently at the apex, runs a protracted course and is often mistaken for acute tuberculosis.

Pulmonary tuberculosis is frequently developed, following an attack of influenza, especially in those with a family tendency to it and in those that have been associated with tubercular subjects. Pleurisy develops in connection with the croupous pneumonia and tuberculosis that appear as sequelæ of influenza. But whether the bacillus of Pfeiffer may give rise to pleurisy or not is not definitely settled. The stitch in the side noticed at times is apt to be due to pleurodynia. The cardiac sequelæ are often very annoying. The heart may have been in a healthy condition before the attack, but the patient is conscious of a heart; this may be a mere distress, or an actual precordial pain is complained of, which at times may simulate angina pectoris. Fatty degeneration is also a sequela. Upon examination the heart is found to be weakened, irregular in action, and a soft systolic murmur may be present. The pulse may be very rapid for some time following the attack, while in other cases it is slow. Ulcerative endocarditis has been attributed to this disease. In some cases there are mental conditions that are fearful to the patient, as he lives in dread of heart disease. In another class of cases the innervation of the heart has suffered most, and as a result there is an intermittent heart's action, when at regular or irregular intervals it drops a beat.

Anemia, both simple and pernicious, may appear as a sequela, as well as a persistent subnormal tem-

perature. Although the gastro-intestinal tract is affected in many of these cases, yet the sequelae here are not pronounced, although membranous enteritis, diarrhea and catarrhal appendicitis have been attributed to it.

Insomnia, neuralgia, multiple neuritis and headache are met with as sequelæ, as well as local or general neurasthenia, acute myelitis, and diabetes of nervous origin. Psychic derangement, melancholia and insanity may develop, the latter in highly neurotic subjects, those who have been previously insane, those who are at a critical period of life and whose nervous system is overtaxed from any cause.

Prognosis.—This is usually good. Death may result from some of the complications.

Treatment.—During the prevalence of an epidemic every effort should be made to avoid exposure, cold and everything that in any way taxes the vital forces. Much may be done to prevent an attack, as in those institutions where strict isolation has been possible the disease has seldom appeared. While none are exempt, those living amid unfavorable sanitary surroundings appear to suffer most. Those who are suffering from any chronic diseases, as well as the aged, and the very young should be protected as far as possible from the attack, and especially from the sequelæ. It matters not how mild the attack, the patient should remain in bed until such time as the recovery is complete. The temperature of the room should be about 70° F., and without draughts. While the fever lasts, the diet should be fluid, and nutritious; as the fever

subsides such articles as milk, gruel, eggs, rice, fresh vegetables and stewed fruits should be introduced. The patient's surroundings should be cheerful and congenial. The bowels should be moved regularly, but all active purgatives should be avoided. The question of alcoholic stimulants should receive due consideration; if the patient has been accustomed to them they should be continued, if not, those who are much debilitated may be benefitted by their use. But they should never be employed indiscriminately. Exercise during convalescence, leaving the bed too early and going out doors, are often attended with a renewal of the symptoms and frequently persistent complications and sequelæ.

Gelsemium.—This remedy is frequently the first indicated; there is great prostration with complete relaxation of the whole muscular system. There are dull pains over the whole body. The pulse is frequent and weak. The eyes are partially closed; the patient is drowsy and desires to be quiet.

Bryonia alba.—This remedy is called for when the serous membranes are involved; there are sharp, stitching pains which are better from pressure, that prevent any motion of the part, and worse from the slightest motion. There is a frontal headache which is dull and pressive in character; the pain may extend to the occiput, neck and shoulders. The scalp is often sensitive to the touch; the lips and mouth are dry, with thirst for large quantities of water. The urine is scanty and of a dark color. The bowels are usually constipated, the stools being large, hard and dry.

Eupatorium perfoliatum.—The great characteristic of this remedy is the soreness and pain over the body as though the bones were broken. There is hoarseness and cough, with soreness in the larynx and respiratory tract. The pulse is weak, there is acute bilious derangement, with coryza and thirst.

Rhus tox.—This should be studied when there is great pain and aching in the limbs, which is worse while the patient is at rest, and is temporarily relieved by motion. There is a red tip to the tongue, and the symptoms on the whole simulate typhoid fever.

Cimicifuga.—This remedy is indicated when there is excessive muscular soreness, the belly of the muscle suffering most; the neck and back feel stiff and lame and the pains may be stitching or cramping in character.

Phytolacca.—This should be remembered when the throat is inflamed and spotty, and the cervical glands are enlarged, hard and tender. There is also pain across the lumbar region, which streaks up and down the spine. The patient is restless, and feels that he must move, but is aggravated by the movements.

Arsenicum iodatum.—This remedy is indicated in the catarrhal cases, when there is irritation and acrid discharges from the eyes, nose and throat, with tightness of the chest and an irritating cough. The skin is hot and dry, yet the patient is shivering; there is great prostration, with restlessness and thirst. When this remedy does not control the catarrhal symptoms, *Mercurius iodide*, or *Kali iodide*, should be studied.

Naphthalin should be remembered in this condition when the symptoms simulate hay fever.

Sabadilla.—This remedy is indicated during the early stages of these cases when sneezing, that shakes the whole body, is the great characteristic. There is sneezing and lachrymation upon going into the open air. The throat is swollen and painful. There is a frontal headache with chilliness, and goose flesh over the body. The mouth is dry, but there is no thirst. It should be studied in the catarrhal form.

The other remedies that are occasionally required for the catarrhal condition are: *Allium cepa*, when the nasal secretions are acrid, the upper lip is excoriated and the patient is better in the cool air.

Euphrasia.—This is indicated when the nasal secretions are bland, while those from the eyes are excoriating like hay fever. When the bronchial tubes are involved, such remedies as *Phosphorus*, *Sanguinaria*, *Tartar emetic*, and *Hepar sulphur*, should be studied.

Phosphorus is indicated when the cough is dry and tickling, there is a tightness of the chest, which is worse before midnight, and there is great debility. The cough is worse upon a change from warm to cold atmosphere.

Sanguinaria should be studied when the larynx and trachea are involved, as well as the bronchial tubes. The cough is wheezing in character, and there is usually a circumscribed redness of both cheeks.

Tartar emetic is of service when there is a loose, choking cough, with oppressed breathing, which is

relieved by expectoration. When this remedy does not act as thoroughly as it should, *Hepar sulphur.* should be studied. I have one patient who always finds relief from *Senega.* There is the rattling as though there was an enormous quantity of sputum, but very little is expectorated. When the bronchial secretions become muco-purulent in character the *Iodide of Antimony* should be studied. Under this remedy there are frequent spells of coughing. The expectoration consists of a frothy white or yellowish mucus, there is loss of appetite, the tongue is coated, and there is disgust for all form of foods. In those cases where the expectoration consists of a thick, yellow, profuse material, the *Iodide of Stannum* is often the remedy.

In the gastro-intestinal type *Colocynthis* is indicated when there are severe pains in the abdomen that cause the patient to bend double, twist and writhe. The pains are relieved by firm pressure upon the abdomen. *Ipecacuanha* is indicated when there is a constant nausea and vomiting. The tongue is clear or but slightly coated, and the patient vomits a white or glairy mucus, but it brings no relief.

Cuprum arsen. is of service when with the nausea and vomiting there are cramps in the extremities, with restlessness, anxiety, and great thirst for a very small mouthful of water at frequent intervals.

Aurum bromide should be remembered in those cases where the mind is affected, and the patient is despondent, melancholy, and even has a tendency to suicide, while children may have attacks that simulate epilepsy.

Kali phosphoricum.—This remedy has been of service in cases where there was pronounced prostration, depression and loss of mental vigor and in those that have been overworked. There is loss of motor power which appears suddenly. The fever is attended with a profuse perspiration which is exhausting.

China 1x.—This remedy is of service to those who are suffering from great weakness and exhaustion, following the attack. There are profuse and debilitating sweats with mental and physical exhaustion. The patient is not refreshed by sleep and complains of vertigo and faintness upon leaving the bed. The pulse is weak and small, the heart's action is feeble, and there is disgust for food, with a bitter, insipid taste in the mouth. The larger bronchial tubes are filled with mucus, which cannot be raised. In some of these cases *Chininum arsenicosum* may meet the indications.

Sulphur.—This remedy in potencies from the 30x up is often of service in assisting the system where reaction from the poison is not satisfactory.

Caffeine.—Either the *salicylate* or the *benzoate of sodic caffeine* is of service in overcoming the tendency to heart failure that is met with where there is marked cardiac asthenia.

Arsenicum album.—This is the remedy where the case is characterized by prostration and sinking of the vital forces. There is anxiety and restlessness, but the patient is too weak to move.

Baptisia tinctoria.—This remedy is of service in those cases that assume a typhoid type. There is

great prostration and all the discharges are fetid. The patient has a stupid, besotted appearance, the face is flushed and dark red. The parts upon which he lies feel sore and bruised.

Avena sativa 3x is of service in cases of slow convalescence that are characterized by anorexia. *Chininum sulphate* should be remembered in those cases where the fever assumes a distinctly remittent type.

Melilotus is of service in cases where the headache is a prominent feature; there is congestion of the head, and at times nosebleed, which brings relief. For those cases where the temperature is subnormal, *Zinc phosphide* is usually sufficient. When the pulse is slow, *Cactus* or *Strychnina* are often required.

DENGUE.

Synonyms.— Break-bone Fever; Dandy Fever; Neuralgic Fever.

Definition.—This is an acute infectious disease that occurs in warm climates and that is attended with severe pains in the joints and muscles, and the fever is usually accompanied by an erythematous eruption.

Etiology.—It occurs in hot climates and during the warm and moist seasons. It is rapidly diffused and attacks nearly all persons exposed. The specific cause of the disease has not been isolated, but is thought to be conveyed by gnats or mosquitoes.

Pathology.—As death seldom results, post-mortem examinations are rare, and the anatomical changes are not definitely known.

Symptoms.—The onset is sudden, without prodromata, the period of incubation is from two to five days. The invasion is marked by a chill, followed by a fever of 103° F. to 105° F., intense headache, burning pains in the temples, backache, severe aching and swelling of the joints, stiffness of the muscles, nausea and vomiting, constipation, and the appearance of a rash which may simulate scarlatina. After from a few hours to two or three days there is a distinct remission of from one to two days duration. The onset of the second paroxysm is also sudden, but the symptoms are milder, although the patient is

greatly debilitated. At the time the characteristic eruption appears, which may be either erythematous or roseolous, it is attended with intense itching. Its duration is from one to two days when desquamation occurs and convalescence is established. The patient remains debilitated and regains his strength slowly. Relapses are common, and the duration of the disease is about eight days.

Diagnosis.—The course of the disease and the epidemic influence should lead to a correct diagnosis. During the first paroxysm it might be mistaken for acute articular rheumatism. The eruption might be mistaken for scarlet fever or measles, but the joint and muscular pains should lead to its being distinguished.

Prognosis.—This is favorable in a patient of moderate power of resistance. Pneumonia and other forms of infection may develop as a result of the debilitating effects of the primary disease.

Treatment.—The patient should have absolute rest till the end of the second febrile stage. The patient should be protected from mosquitoes. The bowels should be thoroughly opened. The fever should be controlled by frequently bathing with tepid or cool water, or sponging with equal parts of hot water and alcohol. During the chill, hot drinks, hot foot baths, or hot water bottles to the feet and warmed blankets are of service. During the febrile stage the diet should be fluid in character and cool drinks should be allowed. Gentle rubbing will relieve the soreness of the body. If the patient is markedly prostrated, hot stimulants will be of service.

Aconite is frequently of service in the early stages when the restlessness, anxiety, etc., are the leading symptoms.

Bryonia is of service when pain, which is aggravated by motion, is a prominent symptom, when the fever is high, the bowels are constipated, and the eruption is out on the skin.

Ipecacuanha should be studied when nausea and vomiting are the prominent symptoms.

Arsenicum should be remembered when the patient is exhausted, and diarrhea is distressing.

Eupatorium perfoliatum is indicated when the break-bone pains are the most prominent symptoms.

Gelsemium should be remembered when the prostration is a prominent symptom.

Rhus tox. should be studied if the fever remains high and the eruption is present.

In hemorrhagic conditions *secale cor.*, *arsenicum*, *sulphuric acid* and *china* should be remembered. Should renal hemorrhages become a prominent symptom, *cantharis*, *terebinthina*, *belladonna* and *arsenic* should be studied.

MALARIA.

Synonyms.—Chills and Fever; Ague; Remittent Fever; Roman Fever; Swamp Fever; Panama Fever; African Fever; Honduras Fever; Black Water Fever.

Classification.—Tertian fever, quartan fever and estivo-autumnal fever.

The tertian and quartan fever are usually intermittent, while estivo-autumnal fever is either remittent or continuous.

Definition.—This is an infectious disease characterized by the presence in the blood of the plasmodium malaria, an enlarged spleen and a periodicity of the symptoms.

Etiology.—The exciting cause is the plasmodium malaria or hematozoon of malaria. This is believed to be introduced into the blood by means of the mosquito. There are three varieties of the parasite, the tertian, whose life cycle is forty-eight hours; the quartan, with a life cycle of seventy-two hours, and the estivo-autumnal, with a life cycle varying from twenty-four to forty-eight hours or longer.

Malarial fever prevails in the tropic, subtropic and temperate zones. River bottoms, low lands and decaying vegetables favor the infection; while drainage and cultivation reduce its occurrence.

Negroes and Indians are not as susceptible as are the white races. Those who are exposed to the

weather are more susceptible than those who are well housed.

The period of incubation of the tertian variety is ten days; of the quartan, thirteen days, and of the estivo-autumnal is three days.

Pathology.—As a result of the malarial infection, anemia develops rapidly. The hemoglobin shows a greater reduction than the blood corpuscles. The malarial bodies are found in the phagocytes. The leukocytes are not increased. Amyloid disease may develop. The bone marrow is usually of a deep red color and in some cases shows a melanotic pigmentation. The kidneys are enlarged, of a reddish-gray color, and parenchymatous changes may be present. The liver often shows pigmentation, and occasionally cirrhosis is present. The spleen is always enlarged and in chronic cases may become greatly enlarged (ague cake). Perisplenitis is occasionally met with. In continued cases a malarial cachexia develops, in which the anemia is pronounced and a condition of jaundice is present; while the complexion is muddy and of grayish-yellow tint.

Symptomatology.—Preceding the paroxysm the patient may complain of certain vague symptoms, as nausea, chilliness and pains, which show a certain periodicity. The paroxysm consists of three stages; chill, fever and sweating.

CHILL.—A few hours before its appearance the patient complains of a restlessness and headache, when the chill appears abruptly, and may amount to a distinct rigor, which lasts from fifteen minutes to

an hour. During this time the patient complains of a creeping sensation down the spine and yawns, and there is present a degree of cyanosis, the result of a contraction of the peripheral blood-vessel. At the same time there is a corresponding congestion of the viscera. Frequently there is nausea and vomiting, rapid heart action, a small, high tensioned pulse and chattering of the teeth. The surface temperature may be subnormal, while the rectal temperature is much above normal.

The cold stage gradually passes into the hot stage, which lasts from one to four hours. During this stage the patient complains of heat; the face is flushed; the conjunctiva is injected, while the pulse is full and bounding. There are thirst, severe headache, restlessness and delirium. The temperature may be 105° F. or above.

This is followed by the stage of sweating, which begins on the face and gradually extends over the whole body, lasting from one to three or four hours. As the sweating begins the fever begins to fall, and at the end of this stage it may be normal or subnormal. The headache gradually subsides and is frequently followed by herpes upon the lips, and albuminuria.

Following the stage of sweating there is a period of intermission of from twenty-four to thirty-six hours, during which the patient feels well, with the temperature normal, or slightly below. At the end of this intermission the symptoms are repeated. The regularity of the paroxysms depends upon the

uniform growth of the parasite. In some cases the subject is infected upon two successive days; and two distinct groups of parasites, that sporulate on consecutive days, cause a daily paroxysm (quotidian fever).

In long continued infectious cases, the growth of the parasite becomes irregular as a result. The chill may be prolonged or even absent, and the fever irregular, continued, or absent; and the period of sweating may also show variations. In all these cases an examination of the blood is required to determine the variety of the type.

The quartan type is the rarest form. In the single infection the paroxysm occurs every seventy-two hours. In a double infection a paroxysm occurs on two successive days, when one day intervenes and again two successive paroxysms follow. A triple infection may result.

Of the estivo-autumnal type there are several varieties. In the quotidian intermittent type there is a daily paroxysm. In the tertian type there is a paroxysm every forty-eight hours, with a tendency to become irregular.

Pernicious malaria is usually associated with the estivo-autumnal parasite and is the result of a severe infection of the estivo-autumnal parasite, or of a great abundance of parasites.

An algid form of malaria is one that is characterized by marked gastro-intestinal symptoms, vomiting, purging and abdominal cramps. The temperature is normal or subnormal, the urine diminished and the pulse feeble.

A comatose form simulates an apoplectic stroke in which the patient rapidly becomes unconscious and comatose, increasing in severity till the patient dies in coma. At first the temperature may be above normal, but it soon becomes normal or subnormal.

A hemorrhagic type, in which there is bleeding from the kidneys, may occur with any form of malaria. In some of these cases there is complete suppression of the urine that is the cause of death.

Complications and Sequelæ.— Nephritis, pneumonia, dysentery and enteric fever are most common. Relapses are common.

Diagnosis.—The great diagnostic point is the demonstration of the presence of the plasmodium in the blood. This may require a splenic puncture in securing blood in the case of the estivo-autumnal form. The paroxysms, anemia, enlarged spleen, etc., are secondary.

Prognosis.—In tropical and subtropical regions in which the estivo-autumnal parasites occur this is unfavorable. In temperate climates, the prognosis is good.

Treatment.—If one is obliged to reside in a malarious district, high ground should be selected for a residence and the night air should be avoided. Mosquito netting is of service. Thorough drainage and the cultivation of marshy lands are helpful. The *anopheles* mosquito in itself is not sufficient to produce malaria, but must suck the blood and receive the infection from a malarious patient.

The *prophylactic* methods have been, first, the de-

truction of the mosquito; second, the prevention of the entrance of the plasmodium into the human body; third, the increase of the resistance of the human body, and fourth, the prevention of infection by the mosquito. To accomplish this, fumigate with sulphur and destroy breeding places of the mosquito. Barrels, privies and vessels containing water should be emptied or protected by netting. The sprinkling of sweet oil or petroleum upon water prevents the larvæ from coming to the surface for air. The removal of shade trees too close to the residence is of service; and the planting of trees that absorb moisture, as the eucalyptus, is of benefit.

To accomplish the second point, the individual should not go out of doors after sunset or before sunrise. Doors and windows should have netting, and nets should be worn about the head; the hands and feet should be protected; the sleeping rooms should be darkened. As the infection may be carried on fruits, they should be thoroughly washed or cooked before being eaten.

To accomplish the third point, pure drinking water and hygienic surroundings are of great value. All forms of over-exertion should be avoided. During hot weather, work should be done only during the cooler parts of the day. Alcoholic beverages of all forms should be avoided. Small doses of *quinine* appear to have some influence as a prophylactic.

The fourth point consists in caring for the infected patient that the mosquito may not become infected.

In the intermittent form of the fever the endeavor

of the patient to keep warm during the chill should be assisted. Hot drinks at first, later cold drinks and cold applications to the head are of service. During the period of sweating, the patient should be kept comfortable.

In the remittent form, hydropathic measures have a temporary effect, but they do not shorten the course of the disease. All measures that increase the resistance of the patient should be introduced and reinfection avoided, so far as possible.

Pernicious malarial fever calls for those means that will support the heart's action, as the use of external friction and applications of warmth in various ways to the surface of the body. In the algid form the use of those methods which are of service in dysentery and cholera in the gastro-intestinal form are of value.

In the management of the malarial cachexia, the patient if possible should be removed from the malarious district; and if not removed, the best of sanitary methods and food should be provided; and all methods that will assist in the reduction of the size of the spleen should be applied, as massage, cold douches and electricity.

Hemoglobinuria requires careful observation as to the etiology. If this is found to be dependent upon any remedy that is being administered, it should be withheld and such methods employed as will bring up the general tone of the system and overcome the nephritis present.

During a paroxysm the stomach is usually irritable, and if food is taken, it will be vomited. Should the

patient desire food, hot milk, broths or gruels are the best. As the appetite returns, the usual diet should be allowed. It should, however, contain a large percentage of green vegetables and fruits to overcome the constipation. If the constipation is a prominent factor, stewed fruit consisting of one part each of dry figs, apricots and prunes and two parts of green apples, peeled and cored, should be given. This should be stewed one hour and sweetened to suit the taste. Of this a sauce-dish full once or twice a day is usually sufficient to relieve the constipation.

In prolonged and severe cases in which a high degree of anemia has resulted, a highly nutritious diet is demanded.

Chininum sulphuricum.—This remedy is of the greatest service in many cases. While it is abused by many, and is the cause of serious disturbances when given in enormous doses, and often when not indicated, this is no argument that it should be cast aside. It is indicated when the paroxysm appears with marked regularity and the different stages are well defined and are followed by a perfect apyrexia. There is tinnitus aurium and violent throbbing headache with vertigo.

Chininum arsenicosum should be compared and studied, especially in those cases in which there is more of an irregularity of the symptoms.

Ipecacuanha.—Some of the author's most successful experiences in the treatment of malarial fever have been in the use of this remedy. It should be studied in those cases in which the type is sometimes remit-

tent, again intermittent, and there is a history of prolonged irregular malarial infection. The symptoms centre about the stomach, and there is violent and long continued nausea and vomiting of quantities of tenacious white, glairy mucus. It will be found that the triturations will give better results than the dilutions.

Eupatorium perfoliatum.—This remedy should be remembered in subacute and chronic malarial infection in which the patient has taken much *quinine*, and is greatly debilitated. There are many of the gastric symptoms that characterize *ipecacuanha*, but in addition there are severe bone pains and soreness of the whole body and of the eyeballs, head and chest.

Gelsemium sempervirens.—This remedy should be remembered in the quotidian type of fevers of children in which the pulse is quick and soft, the face red and the child drowsy.

Arsenicum album.—This remedy should be studied in cases that are irregular, both in type and stage. The patient complains of great prostration, and is restless, anxious, fearful, irritable, sensitive, peevish and easily vexed; and there is rapid sinking of the vital forces. There is great thirst for cold water, drinks often but little at a time. The pains may be attended with burning, and there is rapid emaciation with cold sweats and great debility.

Natrum muriaticum.—This remedy is indicated in chronic irregular intermittents in which a chronic condition has developed and the patient complains of weakness and complete prostration of the vital forces.

The fever is usually of the intermittent type and the paroxysm is at 10 or 11 A. M. The bowels are constipated, the skin is dry and there are herpes on the lips.

Eucalyptus globulus.—This remedy is indicated in subacute and chronic cases of malarial infection in which convalescence is retarded or unsatisfactory, and the well selected remedy fails to act.

Cedron.—This remedy is indicated in those cases in which the symptoms appear with pronounced regularity.

NASHA FEVER.

Synonyms.—Nakra Fever; Masa Fever.

Definition.—This is an acute infectious disease, attended with fever and congestion of the nasal mucous membrane and swelling of the nasal septum.

Etiology.—Its specific cause is not known. It occurs in certain parts of India. It affects adults more frequently than children or the aged. It prevails during the summer, and especially among the poorly nourished and those living in unhealthy and unsanitary surroundings.

Symptoms.—The attack is ushered in by slight fever, which lasts from three to five days. Malaise, prostration and pains in the head, limbs and nose are complained of. There may be small rose spots over the body. The nasal mucous membrane is congested and the nasal septum swollen. Recovery is the rule, but death preceded by coma has been observed.

Treatment.—This is symptomatic. If the nasal septum is much swollen puncture will relieve it. The improving of the sanitary surroundings as well as an improved nutritious diet is needed.

THE PLAGUE.

Synonyms.—Bubonic Plague; Pest; Black Death; Oriental Plague; Malignant Adenitis.

Definition.—This is an acute, infectious, contagious disease, characterized by an inflammation of the lymphatics and a tendency to suppuration, and in some cases by pneumonia.

Etiology.—The exciting cause is the Kitasato-Yersin bacillus. The predisposing causes are poverty, bad hygiene, filth, overcrowding and lack of proper nourishment. It is found in every climate. It is transmitted by the blood and pus of infected rats and mice to the patient by means of fleas, etc., without doubt.

Pathology.—There is inflammation and suppuration of the lymphatic glands, especially the inguinal, but those of the axilla, neck and other portions are also involved. Petechiæ, ecchymoses and carbuncles appear over the body. The carbuncles slough and show more or less induration about them. The spleen is enlarged, while the heart, liver and kidneys show parenchymatous degeneration.

Symptoms.—The stage of invasion is indicated by lassitude and pain in the back and legs. The patient becomes dull and stupid, similar to a person under the influence of intoxicants. Fever may be absent or low. As the disease is fully established, there is a severe chill followed by fever 107° to 108° F. The

patient is now delirious, and soon passes into stupor and coma. The heart's action is rapid and feeble and collapse may occur. The lymphatics now begin to enlarge, with sudden fall of the temperature, attended with a copious sweating. The mind clears and the buboes become prominent. The inguinal glands may be the only ones involved. As the buboes develop they vary in size from that of a pea to that of an orange. The third or fourth day after the formation of the bubo the glands break down and suppuration takes place. In grave cases suppuration may not take place, but carbuncles occur in considerable numbers, and petechiæ are seen.

Convalescence may be greatly protracted by the local lesions, but it usually sets in between the sixth and tenth days. The discharging of pus from the carbuncles and lymphatics results in prolonged relapses, which may lengthen the disease. A second attack may occur. Death may result in a few hours in the fulminating form.

Diagnosis.—The prevalence of an epidemic renders the diagnosis easy. The prodromes, the high fever, the enlargement of the lymphatic glands which suppurate, and the protracted convalescence are the diagnostic points.

Prognosis.—The mortality of this disease is greater than that of any other acute infectious disease. Death generally occurs about the fourth day.

Treatment.—Quarantine should be strict. Cleanliness and the observance in detail of every rule of hygiene should be most thoroughly carried out. All discharges from the infected one should be treated by

strong antiseptics. The eradication of the rats, mice and fleas are the eradication of the plague.

The patient should be kept in a well ventilated, light room, from which all unnecessary articles of furniture have been removed. The diet should be nutritious and as sustaining as is possible. If the fever is high, cool sponging should be employed; if the heart's action is weak, the water should be tepid. If there is cerebral congestion, an ice-bag or a Leiter's coil may be applied to the head. The mere bathing of the temples with cold water will bring relief. If the headache is severe and will not yield to other means, a counterirritant at the base of the brain and upper cervical vertebræ is of service.

During the early stages of the glandular enlargement cold applications are of service; while later when the glands are enlarged, hot applications are of service. When suppuration has taken place, the gland should be incised and treated antiseptically.

If heart failure is threatened, friction over the cardiac area and to the limbs should be practiced. *Caffein*, *strychnine*, *lachesis* and *naja* should be studied as remedies in maintaining the heart's action. Injections of saline solutions and oxygen inhalations are beneficial in many cases.

Haffkine has inoculated against the plague with some apparent benefit. Yersian serum has also been used as a preventive, but the results are not definitely determined.

The remedies that have been of service are *anthracinum*, *chininum arsenicosum*, *badiaga*, *lachesis*, *silicea*, *hepar sulphur.* and *calcarea sulphur.*

DIPHTHERIA.

Synonyms. — Putrid Sore Throat; Malignant Quinsy; Membranous Croup.

Definition.—This is an acute infectious disease, characterized by the formation of a false membrane, usually in the upper air passages, by the presence of fever and glandular enlargement.

Etiology.—It is the result of an infection with the Klebs-Löffler bacillus and the streptococcus pyogenes, which constitutes a mixed infection. It is a disease of childhood, seldom attacking those over sixteen years of age or babies while nursing. Catarrhal states of the upper air passages, adenoids, enlarged tonsils, furnish favorable culture soil. The contagion is conveyed by means of the clothes, by direct contact and for a short distance by means of the air. It occurs at times sporadically, again epidemically.

Pathology.—The diphtheritic membrane is at first of a yellowish white color, while later it becomes gray. At first it is firmly adherent to the mucous membrane, and if detached leaves an abrasion. Later it becomes softer and peels leaving a red, more or less bloody surface.

In malignant cases the mucous membrane becomes gangrenous and the surrounding salivary and lymph glands are enlarged and indurated. While the diphtheritic membrane is usually confined to the mucous surfaces of the upper air passages, it may develop upon any mucous surface.

The membrane is the result of a necrosis of the mucous membrane and consists of coagulated fibrin, necrotic tissue and the diphtheritic bacilli. A similar membrane, dependent upon a streptococcus infection, termed diphtheroid infection, may be present during the course of measles, scarlatina, pertussis and enteric fever. The heart may show a fatty and hyaline degeneration, endocarditis may be present, while pericarditis is seldom present. The liver and spleen also show degeneration, while nephritis may be present. Broncho-pneumonia is common.

Symptoms.—The period of incubation is from two days to one week. The disease may appear slowly or there is a chill which is followed by a moderate fever, at which time the patient may or may not complain of pain in the throat while swallowing. The tonsils are usually swollen and the fauces present a livid appearance, and there are soon to be seen yellowish or grayish patches of false membrane over the tonsils, uvula and posterior wall of the pharynx, which, if forcibly detached, leave a bleeding surface. The submaxillary and cervical glands are enlarged, while the soft tissue of the neck shows tumefaction. The white blood corpuscles are increased in number.

The systemic symptoms are pronounced. The inflammation and necrotic changes extend to the larynx and the nose; as a result aphonia, croupy cough, difficult breathing and swallowing and a nasal discharge follow. The primary infection may be in the nose, and thus escape observation, or it may extend from the larynx to the trachea and bronchi.

Pneumonia may develop. The action of the heart may become intermittent and weak. Heart failure, septicemia, obstruction of the larynx or bronchitis are the most common causes of death. The mortality varies in different epidemics.

The onset of the disease is indicated by chilliness, headache, and pain in the back and limbs. In infants and young children the advent of the disease may be announced by a convulsion. The disease presents itself differently according to the location of the specific inflammation. If it is in the pharynx, a sore throat is complained of, the cervical glands are enlarged and tender, while the tonsils are enlarged and covered with a grayish or yellowish-white membrane, which, if forcibly stripped from the mucous membrane, leaves a bleeding surface.

Laryngeal diphtheria may be primary in the larynx, but more frequently it is secondary to a pharyngeal development. In these cases the croupy cough, aphonia and the progressive laryngeal stenosis constitute the leading symptoms.

Nasal diphtheria may be primary in the nose, but more frequently it is secondary to the pharyngeal form. In these cases there is an offensive and often bloody discharge from the nostrils or an epistaxis. The membrane is usually found upon inspection. In some cases a membrane containing the bacilli of diphtheria is discovered in the nose without constitutional symptoms.

It should be remembered that the membrane may develop upon any of the mucous surfaces.

Complications and Sequelæ.—Chronic diphtheria may occur. Paralysis of the soft palate is frequent, when swallowing is interfered with. There is a form of motor paralysis as well as sensory paralysis. The muscles of the extremities, eyes and trunk may be affected. The heart may be affected, when sudden death results. Of the rarer sequelæ are osteo-periostitis and sinusitis.

Diagnosis.—

DIPHTHERIA.	TONSILITIS.
1. The membrane has a tendency to spread.	1. The membrane shows little or no tendency to spread.
2. The membrane is continuous and is of a yellow-white color.	2. In lacunal tonsilitis the plugs are situated at the orifices of the ducts, and are creamy in color.
3. The membrane is composed of meshes of fibrin including necrotic tissue, and contains diphtheritic bacilli.	3. The plugs are composed of desquamated epithelium sebaceous material and of ordinary fungi.
4. The constitutional symptoms are pronounced.	4. Not so pronounced.
5. Local symptoms, as soreness, burning, etc., are not as intense.	5. These are more intense than with diphtheria.

DIPHTHERIA.	SCARLET FEVER.
1. No rash.	1. Within twenty-four to thirty-six hours scarlet rash appears.
2. The disease centers itself about the throat.	2. The throat symptoms are but part of the general disease.
3. The detection of the Klebs-Löffler bacillus removes all doubt.	3. This is not present.
4. Post diphtheritic paralysis occurs.	4. Not present.

DIPHTHERIA.	SCARLET FEVER.
5. Seldom any suppurative otitis, nephritis, glandular enlargement.	5. These are often present.

Diphtheria and scarlatina may co-exist simultaneously in the same patient.

DIPHTHERIA.	STOMATITIS.
1. The constitutional symptoms are pronounced.	1. Not so profound.
2. The membrane is usually confined to the pharynx.	2. The deposits are seated on the mucous surface of the lips, cheeks, tongue, etc.
3. It does not yield easily.	3. Usually yields to mild means.
4. The fatality and severe sequelæ are characteristic.	4. Are wanting.

Prognosis.—This should be guarded in all cases, as those that are at first mild may acquire a grave character as the case advances. The type of the epidemic should always be considered. Great physical depression, spreading exudate to the larynx and nares, great swelling of the submaxillary and cervical glands, hemorrhages from the fauces and nose render the case more unfavorable. The favorable symptoms are a moderate fever and exudate, strength but slightly impaired.

Treatment.—Much is accomplished in the control of this disease by prophylaxis. The patient should be isolated so far as possible from the family and attended by a nurse who does not mingle with the family. All hangings and tapestries should be removed from the room. A sheet constantly moistened with an antiseptic solution should be hung over the

door. All discharges from the mouth and nares should be received into a cloth which is at once burnt or immersed in a solution of *carbolic acid* (six ounces of the *carbolic acid* to two gallons of water), and then boiled for one hour. The room should be thoroughly ventilated and dusted with a damp cloth. The sweepings from the room should be burnt.

All utensils used in the room should be thoroughly disinfected. The nurse and physician should exercise every precaution that they do not spread the disease.

Following the removal of the patient, the room and all its furnishings should receive careful disinfection and fumigation.

The patient should have absolute rest in bed during the course of the disease. After the membrane has disappeared, the patient should be kept quiet for at least one week and longer, if the heart's action or valvular sounds indicate any myocardial degeneration or valvular changes. If it is believed that these have taken place, the patient should be kept perfectly quiet in the recumbent posture, he should use a bed pan, and the movements in bed should be slow and limited, till such a time as movement will not produce any undue heart action.

Owing to the devitalizing character of diphtheria, the diet should receive special attention. The food should be liquid and should be given at regular intervals. Milk, plain or mixed with lime water, or a carbonated water, a predigested beef, peptonized albumen water, soups, gruels and many of the infant foods

are of service. Some cases will be met with in which semi-solids appear to be swallowed with greater ease, in which case the above fluids may be thickened with well cooked cereals. Custards, egg-nog, and plain ice cream are beneficial. If the patient is unable to swallow, nutritious enemata should be employed. Following this, should intubation be found necessary, the child may experience some difficulty in swallowing at first, but this soon passes away. If it does not, the child usually swallows when the head is placed lower than the body, or the child may lie across the nurse's lap with the head well back and down.

In post-diphtheritic paralysis much food may be returned through the nose; or if the muscles of the tongue and soft palate are involved, deglutition becomes impossible. In these cases the child must be fed by the stomach or nasal tube, or by the rectum.

The local treatment of the nose and throat should be such as will keep the parts as clean as possible, and protect the attendant from infection, and prevent secondary infection. All irritants and measures that will result in abrasion of the epithelium should be avoided.

A three per cent. solution of *hydrogen peroxide* is of service, and may be applied by means of a swab or fine brush or spray. It should not be used too frequently lest it start hemorrhages. Gargles consisting of a two per cent. solution of *bicarbonate of soda*, *boric acid*, a weak solution of *carbolic acid* or *permanganate of potash* are also of service. It should be remembered that all that can be expected is the cleansing of the parts and the control of the fetor.

In laryngeal cases the filling of the room with moisture from a vessel in which there is a solution of *vinegar*, *oil of eucalyptus* or *potassium permanganate* is of service.

Intubation of the larynx is required in a portion of the laryngeal cases. As this procedure is without special harm, it should be performed early, before the child is moribund. When the case has been intubated it should be under constant observation, as the tube may become obstructed and suffocation result.

Tracheotomy is indicated in those cases in which intubation has not afforded the needed relief.

Antitoxin is indicated in diphtheria during the early stages of the disease, before secondary infection has taken place. In an extensive use of the remedy none but the very best of results have been observed. When the case is observed early, and it is decided that this is the remedy to be employed, the skin, either in the infra axillary region, the thigh or abdomen, should be thoroughly cleansed, as well as the operator's hands, the dose selected varying from 1,500 to 3,000 units, according to the severity of the case and the age of the patient. If in six to eight hours it is found that the patient is not responding to the action of the remedy, as well as is desired, a second dose is administered; and after a like period a third dose may be administered. By this time, in the majority of the cases, the period for the application of this remedy is past, and another remedy is selected. The *antitoxin* is employed in moderate doses in the cases of those who have been exposed. The period

of immunity following an injection is from three to five weeks, providing the child has been removed from exposure. If the exposure continues, the period of immunity is from ten to fifteen days.

Diphtherinum is administered internally by some in the management of these cases, especially by those who are opposed to the *antitoxin*.

Phytolacca decandra.—This remedy is indicated in those cases in which the patient complains of great prostration and weakness and pains and soreness all over the body. The tonsils, fauces and pharynx are covered with a dark grayish colored membrane. There is a sensation as of a great burning in the throat. The parts are so sensitive that deglutition is almost impossible. The breath is very fetid and the parotid and submaxillary glands are swollen.

Belladonna.—This remedy is of service during the early stage of some cases as well as in mild cases in which the tonsils and surrounding parts are highly inflamed and of a bright red color. The patient complains of dryness of the throat. There is a continual desire to swallow, and a feeling that he would choke if he did not, but the attempt to swallow, especially fluids, causes an excruciating pain which extends from the region of the tonsils to the eustachian tube. The patient's head is hot, the face is red and the pupils are dilated, the conjunctiva injected and the carotids throb.

Mercurius cyanatus.—This remedy is indicated in markedly septic cases in which there is grayish exudate, which covers the tonsils, pharynx, fauces, larynx

and mouth. The exudate frequently appears in the nares and extends to surrounding locations. As the membrane separates there are deep ulcers and gangrene of the tissue results. The salivary and cervical lymphatic glands are engorged, indurated and tender. The patient is greatly prostrated and partially unconscious. The urine is suppressed or contains a large percentage of albumin.

Mercurius corrosivus.—This remedy is considered by many of greater efficiency than *cyanatus.* The symptoms are very similar to those of the group; it does not, however, possess the profound prostration and the disorganization of the fluids which characterize the *cyanatus.*

Mercurius biniodatus.—This remedy is indicated in mild cases in which there is but little prostration or tendency to putridity. The left tonsil is the one most frequently affected. The fauces are dark, the soft pallate is elongated and there are large accumulations of mucus in the mouth and throat. The exudate is then transparent and easily detached; the surrounding glands are enlarged.

Mercurius protoiodatus.—When this remedy is indicated the process is usually most pronounced upon the right side. The exudate is not pronounced. The surrounding glands are enlarged, indurated and tender. There is an offensive smell from the mouth and fetid discharges from the fauces and nares. The tongue is broad and shows the imprint of the teeth, and there is a continuous hacking and the clearing of stringy mucus from the throat.

Carbolic acid.—This remedy is indicated in those cases that are characterized by a pronounced putridity, of a dark grayish membrane, which shows a great tendency to putrefaction. There is no severe pain complained of, but the whole condition is one of great putridity.

Kali permanganicum.—This remedy in its proving and clinical application is shown to be of great service in this disease. The leading symptoms are the great foulness of the breath, difficulty upon swallowing, marked prostration, great soreness of the larynx and induration of the salivary and cervical glands. The exudate is extensive and the parts show a tendency to ulcers following the separation of the exudate. It is also of service locally.

Kali bichromicum.—This remedy should be studied in those cases in which the exudate is of yellowish color and extends from the tonsils and pharynx to the larynx and trachea. The expectoration consists of viscid tough mucus which may be drawn out into long strings. The fetor from the mouth is intense, the ulcers of the throat show a tendency to extend deep into the tissue. The pains extend along the Eustachian tube. There is swelling of the parotid and submaxillary glands. The patient complains of great weakness and prostration and remains in a semiconscious condition.

Rhus toxicodendron.—This remedy should be remembered in those cases in which there is pronounced inflammation and swelling of the cellular tissue and glands of the throat. Bloody saliva runs from the

mouth during sleep, and there are sticking, stinging pains in the tonsils. The case develops a typhoid condition. Early in its history the patient is restless and the modalities of *Rhus* are present.

Arum triphyllum.—When this remedy is indicated there is excessive acrid salivation. The corners of the mouth and mucous membrane of the throat are raw and sore, and as a result the patient refuses all nourishment and drink. The breath is fetid and the mouth and throat are covered with membrane. The submaxillary glands are swollen and the patient picks his fingers and lips till they bleed.

Baptisia tinctoria.—This remedy should be remembered in advanced cases that are septic and have assumed a typhoid character. The absence of pain and the presence of stupor and fetor are characteristic The patient complains of a sensation of fullness in the fauces and there is extensive edema of the affected parts, which present a dark red color; the ulcers are dark and the stench from the parts is unbearable. *Echinacea* should be compared in these cases.

Lachesis.—This remedy should be remembered in those cases in which the constitutional and septic symptoms are greater than the local manifestations of the disease would indicate. While the subjective symptoms are severer than the objective, the disease begins on the left side and usually extends to the right. The throat is extremely sensitive to pressure, deglutition is extremely difficult and painful. The membrane is of a white or yellowish color, while the inflamed parts are of a purplish color. The patient

feels worse after sleeping and from touching the neck or throat. Empty swallowing aggravates the pain in the throat more than the swallowing of food.

Apis mellifica.—This remedy is indicated in those cases in which there is extensive inflammation with but little pain, apart from the stinging. The patient is thirstless and there is extensive puffiness and edema of the subcutaneous and submucous tissues.

Ailanthus glandulosa.—This remedy should be remembered in those cases in which the parts present a livid swollen appearance. The throat is extremely sensitive to touch. The whole case presents a septic appearance.

Kali muriaticum.—This remedy is considered of the greatest importance among the tissue remedies, and in alternation with *ferrum phos.* is all that is required in many cases. The enlarged inflamed tonsils, the grayish-white slimy coating of the tongue, the exudate into the connective tissue are characteristic.

Lac caninum.—This remedy is used by some when there is pain in the right side of the neck, pricking sensation in throat as if full of sticks, stinking breath. Exudate begins in the side and goes to the right; also it begins in the right, but is not very thick, and is not accompanied by much inflammation, and looking as if lying loose. White ulcers on the tonsils, which, together with the fauces, are covered with a yellowish-gray, curdy deposit; constant inclination to swallow; profuse saliva saturating the pillow. Tongue, fauces and tonsils all swollen and covered with a dirty coating.

Lycopodium.—When the exudate begins on the right, it is worse on that side. Much swelling and pain in throat, with spasms in swallowing; the appearance of the fauces is rather of a brownish redness; white or grayish membrane; begins in the nose and extends down the throat; feeling of constriction in the nose, throat and chest; fetor oris. Worse on the right side, aggravation of all the symptoms from 4 to 8 P. M. after sleeping. On awakening out of a short nap he is very cross, kicks and behaves very naughtily, or jumps up in bed, stares about and knows nobody, seemingly dreaming with open eyes.

Sanguinaria.—There is heat in the throat, throat so dry it seems as if it would crack, burning in pharynx and esophagus, when the membrane is thin, not when it is tough and closely adherent, pearly coating on the palate and fauces. Burning, especially after eating sweet things. The heat in the throat is relieved on inspiring cold air. Anxiety, moroseness, irritability, feeling as if hot water was poured from the breast to the abdomen.

Sulphur.—This is indicated when swallowing is difficult, liquids run out of the nose, profuse salivation, the taste of which causes nausea and vomiting; all the trouble seems to be caused by the nauseous salivation; the inflamed parts are not bright red, but purple. Large yellow deposits all around the posterior wall of the pharynx, which is ulcerated and sloughing. Dryness of the throat and a constant desire to swallow saliva to moisten the affected parts. The pain and soreness may be quite severe and even

extend into the ear. Empty swallowing more painful than that of liquids. Flashes of heat, frequent sinking spells. The eruption, if present, itches, especially when becoming warm. Very frequent desire to urinate, almost constant urging; the pain caused by urinating scarcely ceases till he is again obliged to micturate and the pain returns. Fever, with sharply circumscribed redness of the cheeks (especially the left one). Slow cases in scrofulous patients. Burning of the feet, must put them out of bed. *Sulphur* is indicated mostly in those cases in which there is latent psora.

Cases of post-diphtheritic paralysis usually recover. *Gelsemium* is the remedy in many cases. *Strychnine phosphate* should be studied when the paralysis is persistent. *Cocculus*, when both the motor and sensory nerves are implicated.

Chloride of gold and sodium 2x is of service when there is a general neuritis.

Electricity should be studied when the acute symptoms have passed off.

Heart syncope demands energetic treatment. The patient should be kept flat on his back. *Glonoin*, *amyl nitrite* or a quickly diffusible stimulant should be given. *Strophanthus*, *cactus* and *naja* are to be studied. Those stimulants that have an action upon the myocardium and the arteries at the same time, as *digitalis*, should be avoided.

MUMPS.

Synonym.—Epidemic Parotitis.

Definition.—This is an acute infectious disease characterized by inflammation of one or both of the parotid glands. It may involve the other salivary glands, the testicles, ovaries and mammary glands.

Etiology.—It usually occurs in epidemics during the spring and fall seasons. It is most common in childhood and uncommon in young infants and in adults. Boys are more frequently attacked than girls. It is communicable to others. One attack usually confers immunity. The specific cause has not been determined. The period of incubation is from seven to twenty-one days.

Pathology.—There is inflammation and edema of one or both glands. The walls of the ducts are swollen, leading to obstruction of their lumens.

Symptoms.—The onset is usually sudden, with malaise, chill, fever, 101° F. to 105° F., quickened pulse, and headache. The skin is dry and the urine scanty; within two or three days there is stiffness and pain below and in front of the ear. This pain may affect this entire part of the neck. In from two to three days the swelling reaches its greatest size and the pain its greatest severity, as well as the difficulty in swallowing. Mastication is now well nigh impossible; the secretion of saliva is diminished and earache is frequently complained of.

The fever lasts from four to five days. The swell-

ing may last for a week, and the opposite side may become involved after the original side has recovered.

Complication.—The enlarged gland may by pressure produce cerebral congestion. Suppuration of the gland is rare. Orchitis may develop. This is indicated by a rise of the temperature and the testicle becoming swollen, painful and tender. Ovaritis, inflammation of the vulva and of the mammary gland may occur in girls. Nephritis, otitis media and deafness, pneumonia, pericarditis, endocarditis, meningitis, facial paralysis, enlargement of the thyroid gland and pancreatic inflammation are among the rare complications. A permanent hypertrophy of the parotid may result.

Diagnosis.—This is usually easy. It may be mistaken for an acute lymphangitis, but the shape of the enlarged parotid gland and the consequent elevation of the lobe of the ear should enable one to distinguish it.

Prognosis.—This is favorable apart from the complications.

Treatment.—In institutions and in families where isolation is necessary the quarantine should be continued for at least four weeks. If there is fever, the patient should remain in bed. Should the fever be high, sponging with cool or cold water is of service. The bowels should be kept open ; the diet should be fluid during the fever and sour articles of food withheld. The patient should be protected from exposure, as it diminishes the liability to complications. Should the pain of the gland become unbearable, warm ap-

plications are useful, or a *cerate of belladonna* or *phytolacca* may be applied and the same remedy administered internally.

In scrofulous subjects, should the gland remain enlarged and indurated, following the disease, *mercurius iodatus*, *hepar sulphur.*, *silicea*, *calcarea hypophos.*, *baryta iod.*, *sulphur iodatus* and *conium* is the group of remedies to be compared and selected from. If suppuration is threatened *hepar sulphur.* should be studied. Should fluctuation occur, the abscess should be opened at once and drainage instituted.

Should metastasis to the testicle, ovaries, or mammary gland occur, the patient should remain in bed and the mammary gland and testicle should be supported by a suspensory bandage.

Inunctions of lard to be followed by massage and the application of hot salt bags are of service in the inflammation of the mammæ.

Pulsatilla, *conium* and *phytolacca* should be compared. In all febrile cases *aconite* and *belladonna* should be remembered.

Mercurius should be studied when the fever is high and the glands show a tendency to permanent enlargement.

Aconite is serviceable when the febrile condition is such as indicated by this remedy. *Rhus toxicodendron* should be studied when there are edema and swelling.

PERTUSSIS.

Synonyms.—Whooping Cough; Convulsive Cough.

Definition.—This is an acute specific infectious disease, characterized by a paroxysmal cough, catarrhal inflammation of the air passages and a prolonged inspiration which produces a "whoop."

Etiology.—It occurs in epidemics most frequently during early childhood, between the second and eighth years. It may occur during adult life, but then it is not well developed. It is supposed to be dependent upon a germ which has not as yet been isolated. It is most prevalent during the early winter and spring months. The epidemic may be preceded or followed by an outbreak of scarlet fever or measles. The period of incubation is from seven to ten days.

Pathology.—There is no definite lesion. Pulmonary complications may develop as broncho-pneumonia, pulmonary emphysema and atelectasis enlargement of the bronchial and tracheal glands, vesicular and interstitial emphysema.

Symptoms.—Following the period of incubation, the catarrhal stage develops. This is characterized by many of the symptoms of acute bronchitis. There is a slight rise of the temperature, slight conjunctivitis, rhinitis, sore throat and a cough which is dry, often severe, but not paroxysmal. The duration of this stage is from one to two weeks.

During the second, or spasmodic stage, the cough becomes paroxysmal and consists of a succession of

short, rapid expiratory efforts which are followed by a deep, loud, inspiration, the whoop. During the paroxysm of coughing, the face becomes red, the eyes are protruded, while the body is bent backward. Each paroxysm consists of three spells, the last one of which is followed by the expectoration of a small amount of viscid mucus. The cough may be attended by epistaxis and vomiting, especially after the taking of food. The duration of this stage is about four weeks.

Following this stage comes the terminal stage, during which the interval between the paroxysms is gradually lengthened. The paroxysms are less intense, the catarrhal symptoms are more marked and the expectoration is freer. The duration of this period is from ten to thirty days. It is frequently followed by a cough, the result of habit.

Complications and Sequelæ.—These are bronchopneumonia, capillary bronchitis, emphysema, convulsions, atelectasis, etc.

Diagnosis.—This is based on the characteristic "whoop" during the catarrhal period; it is impossible to distinguish from simple cold earlier.

WHOOPING COUGH.	MEMBRANOUS COUGH.
1. There is little or no fever.	1. There is fever.
2. Dyspnea is not continuous.	2. Dyspnea is continuous.
3. The voice is natural.	3. The voice is altered.
4. The child is about.	4. Is confined to bed.
5. There is the "whoop."	5. Is not present.

WHOOPING COUGH.	LARYNGISMUS STRIDULUS.
1. Is contagious and attacks all children.	1. Is a paroxysmal neurosis, mostly in rickety children.

2. The cough occurs as a series of explosive expiratory sounds, followed by the distinct inspiratory whoop.	2. The cough is croupy.
3. Between the paroxysms there are indications of bronchitis.	3. This is not present.

WHOOPING COUGH.	TUBERCULOSIS OF THE BRONCHIAL GLANDS.
1. It is self limited.	1. It is not self limited.
2. Recovery is usually rapid.	2. Recovery is not rapid.
3. The cough is attended with a whoop.	3. The cough is ringing.
4. Occurs as an epidemic.	4. The case is isolated.
5. Pressure does not occasion any distress.	5. Pressure on surrounding organs often occasions dyspnea, cough, cyanosis and edema of the face and neck.

Prognosis.—In ordinary cases this is favorable. During infancy moderately severe cases are followed by cerebral symptoms, while attacks in adults are followed by chest symptoms. The age and strength of the patient, the severity of the paroxysms, and the presence or absence of complications should always be considered.

Treatment.—The prophylactic treatment becomes apparent when we realize that the mortality from this disease compares closely with that of scarlet fever. The patients should be segregated from those who have not had the disease. Attendants should be careful of carrying any of the expectoration from the patient, and the room should be cleaned and disinfected.

Only in the most severe cases, and in complica-

tions, the patient should be kept in bed. They should if possible be kept in the open air. If there is much dust, they should wear a veil for protection. Secondary infections are not common, when the patient is kept in the fresh air.

The diet and the condition of the bowels require careful attention, as indigestion and intestinal fermentation are followed by an increase in the frequency of the paroxysms.

If under two years of age the diet of the child should consist of fluid. If the case is a severe one, this should form the major part of the diet, and in those over two years of age an easily digested semi-solid. In some cases the food should be administered in small quantities and at short intervals (two to three hours). If a meal is vomited it should be repeated in a short time. In weak, debilitated patients a tonic and diet will be found of service.

If it is observed that playing, fits of anger or psychical conditions have any influence in producing an attack, they should be controlled as much as possible and the child encouraged to avoid attacks.

A simply fitting abdominal binder is highly serviceable in many cases.

Should a sublingual ulcer develop it should be kept clean by means of a mild antiseptic mouth wash.

It is doubtful if local applications have any influence on the course of the disease, but various agents have been employed as a spray or gargle. *Hydrogen peroxide* one part, and distilled water ten parts, and *glycerine* one-half; or a solution of *carbolic acid* 1 to 200.

Cuprum metallicum.— This remedy should be studied in those cases in which the paroxysms are most distressing and are attended with indications of suffocation. There is dyspnea, cyanosis and vomiting of mucus, a swallow of cold water brings relief of the symptoms.

Naphthalin.—This remedy should be studied in cases characterized by such long continued paroxysms of cough, that he cannot get his breath. During the paroxysm the face becomes purple, the perspiration starts and there is expectorated a quantity of thick tenacious mucus.

Aurum metallicum.—This remedy or the *bromide of gold* should be studied in neurotic subjects in which the paroxysm terminates in laryngismus stridulus. Other remedies that should be studied when the nervous symptoms are prominent are *moschus*, *asafœtida*, *anacardium.*

Antimonium tartaricum.—This remedy should be remembered in cases of some duration and in which complications are arising. There are large accumulations of mucus in the bronchial tubes which are expectorated with difficulty. Nausea and vomiting are common and the patient is drowsy. The indications for this remedy should be distinguished from those of *ipecac.*

Drosera rotundifolia should be studied when there are violent paroxysms of coughing, which are worse at night, and during which time the patient can hardly get his breath. After the paroxysm of coughing the child vomits. There is constriction about the chest.

Belladonna should be studied during the early stage when there is violent coughing without expectoration. There are cerebral congestion, injected eyes, epistaxis and a sore throat which is worse during deglutition.

Ipecacuanha should be remembered when the child stiffens, loses its breath and the face becoms pale blue during the cough, which is violent; this is followed by retching or vomiting of mucus.

Corrallium.—This should be studied when there is short, quick ringing cough, "minute gun" cough.

CEREBRO-SPINAL FEVER.

Synonyms.—Epidemic Cerebro-spinal Meningitis; Spotted Fever; Petechial Fever; Epidemic Meningitis.

Definition.—This is a continuous malignant fever, due to the diplococcus "intracellularis." It usually appears as an epidemic, but may appear as sporadic cases.

Etiology.—Epidemics have occurred at various periods. It has occurred more frequently during the winter and spring. Damp, cold and unclean residing places appear to favor its development. More females are affected than males. The diplococcus intracellularis meningitis is the exciting cause.

Pathology.—The membranes of the cord and the brain show changes that vary from an intense injection of the pia and arachnoid to a profuse fibrino-purulent exudate.

There is frequently an effusion of turbid serum into the subarachnoid space and ventricles. The exudate is commonly from the membrane at the base of the brain, posterior portion of the cord, especially in the dorsal and lumbar regions is it shown to the greatest degree. The spinal nerve roots as well as some of the cranial nerves may be covered with the exudate. The microscope shows the exudate to be largely composed of fibrin and leukocytes. The diplococcus is found in the exudate.

The spleen is enlarged. Acute nephritis, pneu-

monia or pleurisy accompanies the disease. Leukocytosis is present.

Symptoms.—The period of incubation is not definitely settled, but it is estimated as being from three to five days. The symptoms of the disease may gather about one or two conditions, toxemia and inflammation. There may be an initial chill, which is followed by fever and headache which is confined to the back of the head, and pain extending down the spine. The temperature fluctuates between wide limits. The muscles of the back and neck are rigid and sensitive to touch, but this may pass into opisthotonos with muscular twitching, convulsions, dryness of the skin, while hyperesthesia and paresthesia and prostration become profound, although restlessness may continue. There is vomiting of the cerebral type. Violent pains occur with extreme rapidity. In these cases there is an intense toxemia. Nervous symptoms develop and the patient succumbs in a few hours or days. In other cases the symptoms may be mild and the case recovers in two or three days. There may be strabismus, ptosis, nystagmus, and disturbance of the pupil. Paresthesia may occur. Tendon reflexes may be disturbed or lost. The fever does not conform to any type. Constipation is the rule. The urine is scanty and may contain albumin. Between the first and third days of the disease, purpuric spots or an erythematous eruption that quickly becomes petechial may appear upon the trunk and extremities.

Kering's sign. With the thigh at right angles to

the body, the patient either on his back or sitting on the edge of the bed; the legs cannot be extended owing to the marked flexor contractures.

Complications and Sequelæ.—Broncho-pneumonia, bronchitis, endocarditis and pericarditis. The sequelæ are common and consist of affections of the special senses, as loss of sight, deafness, loss of smell, loss of taste and various forms of paralysis. Gradual recovery may take place, but this is not usual.

Diagnosis.—In the sporadic cases the diagnosis is difficult, if the symptoms are not typical. The direct diagnosis is based upon the onset of the cerebral symptoms, headache, vomiting, painful retractions of the muscles of the back and herpes and Kering's sign.

CEREBRO-SPINAL FEVER.	ENTERIC FEVER.
1. Begins quickly.	1. Begins more gradually.
2. Fever is irregular.	2. Has a typical curve.
3. Pulse is not dicrotic.	3. Dicrotic pulse is present.
4. Vomiting early and continuous.	4. Vomiting if present subsides early.
5. Eruption is characteristic.	5. Eruption appears at the end of first week, and is typical.
6. Spleen not usually enlarged.	6. Spleen enlarged early.
7. Delirium early.	7. Delirium late.
8. Widal's reaction not present.	8. Widal's reaction present in large percentage of cases.
9. Photophobia present.	9. Photophobia is rare.

CEREBRO-SPINAL FEVER.	TETANUS.
1. Appears in epidemics	1. Usually appears sporadically.
2. Trismus is not common.	2. Trismus is an early symptom.
3. Not marked symptoms.	3. Opisthotonos, general rigidity and spasms are more marked.

4. Meningococcus in the fluid obtained by lumbar puncture is distinctive.	4. Not present.
5. A percentage of cases recover.	5. Recovery is exceptional.

CEREBRO-SPINAL FEVER.	TYPHUS FEVER.

Both occur in epidemics, are sudden in onset, are attended with profound nervous phenomena and petechial eruption.

1. Not present.	1. There are dusky stupid faces.
2. There are herpes of the face, retraction of the head, fixed spinal pain, the muscular rigidity and heightened sensibility.	2. These are not present.
3. There is great impairment of the special senses and is followed by paralytic sequelæ.	3. These are not present.
4. May simulate.	4. Malignant cerebral typhus simulates cerebro-spinal fever.

CEREBRO-SPINAL FEVER.	TORTICOLLIS.
1. Muscular contractions are usually bilateral.	1. Muscular contractions are unilateral and limited.
2. Symptoms of an acute febrile disease with disturbance of the sensorium, paralytic concomitant and sequelæ.	2. These are not present.
3. Even mild cases will present a severe headache.	3. Even this is not present.

CEREBRO-SPINAL FEVER.	SMALL-POX.

Both have headache, vertigo, nausea, vomiting, pain in the back and fever.

1. Retraction of the head, muscular rigidity, paralysis, hyperesthesia and anesthesia.	1. These are wanting.

2. Temperature irregular and eruption is characteristic.	2. Temperature record, and eruption of small-pox are not the same as cerebro-spinal fever.
CEREBRO-SPINAL FEVER.	YELLOW FEVER.
1. A disease of temperate climate.	1. A disease of hot climates.
2. The motor and sensory symptoms are characteristic.	2. These are not observed in yellow fever.
3. Duration may be protracted.	3. Duration is shorter.
4. Petechial and herpes eruptions appear.	4. Skin presents a saffron yellow color.
5. "Black vomit" absent.	5. "Black vomit" is present.
6. There may be remissions in the intensity.	6. The lull is characteristic.

Prognosis.—This is grave, especially during the early course of the epidemic, when at least 50 per cent. die. The severity of the epidemic varies, some being mild, while others are most fatal.

Treatment.—Proper ventilation and drainage are beneficial. The patient in private practice should be isolated to prevent contagion, and insured the needed rest and quiet, all visiting, talking and strong lights should be excluded. Applications of ice-bags and cold water bags to the back of the head and along the spine often give relief, as does the elevation of the head of the bed. Hot bathing 104° F., lasting fifteen to twenty minutes, once or twice a day is often of service in relieving the pain and lessening the restlessness. Following the attack, *galvanism* to the spine and *faradism* to the paralyzed muscles are of service.

Lumbar puncture should be considered in all these

cases as a means of *diagnosis* and relief of spinal and cerebral symptoms and pressure. The reader is directed to a work on surgery for technique of lumbar puncture.

The bowels should be kept open. Plenty of water should be allowed the patient and care should be exercised that there is no retention of the urine. Small pieces of ice should be allowed in the mouth to assist in controlling the vomiting, and may also be applied to the abdomen. If the vomiting is due to the pressure upon the medulla it may be relieved by *lumbar puncture*. Cold packs and tepid baths, to which mustard has been added, may be of service in allaying the nervous condition.

Cardiac weakness may require alcoholic stimulants, *ammonia*, high hot saline irrigations by the rectum and by normal salt solution under the skin. During the acute stages, milk, broth, gruels and other fluids should be employed, while later semi-solids may be employed.

Gelsemium.—Should be studied when there is dull pain in back of the head. He feels as if intoxicated. Paralysis of eyelids. Double vision and dilated pupils. Complete loss of muscular power. Pulse very feeble. Labored breathing. Nausea and vomiting.

Belladonna.—Violent headache, especially at the base of the brain; head retracted; throbbing carotids; face congested; cutaneous hyperesthesia; sensitive to noise and light; grinding of the teeth; spasm of muscles; pupils dilated; vision lost; unconsciousness. Intense cerebral congestion, convulsions, delirium, stupor.

Veratrum vir.—The attack comes on with violent vomiting; severe cephalalgia, pain in epigastrium, convulsions, head retracted; pupils dilated; pulse slow; heart's action irregular and labored. Violent onset, with vomiting and headache. *Aconite* should be studied when there is great mental anxiety and physical restlessness.

Cimicifuga.—Intense pain in head, as though a bolt were driven from neck to vertex with every throb of the heart. Sensation as if top of head would fly off, and as if the cerebellum were too large for skull. Stiffness of the back. Tonic or clonic spasms, intense pain in eyeballs. Tongue swollen.

Cicuta.—Nystagmus, with dilated pupils, convulsions, twitching of the facial muscles, jerking of the hands and arms; hyperesthesia; deafness, face pale, retraction of the head, dysphagia, coma. Convulsions and insensibility.

Cuprum acet.—Violent headache, vomiting, convulsions, cold perspiration, unequal pupils, muscular rigidity, trismus. Cerebral symptoms prominent; collapse.

Bryonia.—Should be studied when there is a splitting headache, worse from motion. Stiffness of neck. Pain in joints and limbs. Soreness in stomach.

Opium.—Stupor, and deep, slow breathing. Congestion of head, occiput feels heavy as lead. Very quick or very slow pulse. Drawing the body backwards and rolling it from side to side. Spasms, with tossing of limbs. Worse while sweating.

Crotalus.—Horrid headache, with feeling of tight-

ness in brain. Red face and delirium, with open eyes, red spots on all parts of the body. Pain in the limbs, heart-beat feeble.

Rhus tox.—Low, typhoid-like condition, mind dull and clouded, great prostration, dry, brown tongue, diarrhea. After the first week.

Chininum sulphuricum.—Involuntary closing of eyelids from prostration. Violent throbbing headache. Redness of face and vertigo. Great prostration. Pain in the dorsal vertebræ on pressure.

ERYSIPELAS.

Synonyms.—The Rose; St. Anthony's Fire.

Definition.—This is an inflammation of the superficial lymph-channels of the skin.

Etiology.—The exciting cause is the entrance of streptococcus erysipelatosus through an abrasion into the lymphatic vessels of the skin. (This bacterium is believed to be of the streptococcus pyogenes group.) Of the predisposing causes are a lower vitality as results from tuberculosis, diphtheria, scarlet fever, small-pox, influenza, typhoid fever and alcoholism. One attack predisposes to a second. A solution of the contiguity of the skin is present. It is often endemic and may be epidemic.

Pathology.—Microscopic examination reveals the streptococci in the lymph channels. There may be edema, abscesses or blebs of the skin. Metastatic abscesses may occur in various organs, as well as hemorrhagic infarcts of the lungs, kidneys and spleen. Secondary septic endocarditis, pericarditis, pleurisy may occur; acute nephritis may occur, while pneumonia and meningitis are rare.

Symptoms.—The period of incubation may be only a few hours. Premonitory symptoms may be wanting. There is a chill which is followed by a fever, the temperature speedily reaching 103° F. to 105° F. The pulse is accelerated to from 100 to 130. The tongue is coated and there are nausea and vomiting and frequently pains in the extremities and diar-

rhea. Epistaxis may be present in adults and convulsions in children. A delirium resembling delirium tremens is frequent in alcoholics. Soon after the chill the eruption appears as red spots which rapidly coalesce and spread. Accompanying the eruption there is a sensation of heat, tension and tingling. The affected part presents a tense shiny appearance, and at times the edema is such that the features are much distorted; the eyes may be closed. Vesicles may develop, coalesce and form blebs which contain a clear yellow serum, at times they may contain pus.

In from five to seven days the eruption subsides, the symptoms abate and the case gradually improves, leaving the affected parts tender. During the height of the disease, albumin appears in the urine and uremic poisoning may occur.

Phlegmonous erysipelas is the term used in those cases in which there is extensive infiltration and swelling and tension of the areolar tissue. When the eruption extends from one part of the body to another, the term ambulatory, wandering or migratory erysipelas is applied. In certain cases the general infection is such that an elevation of the temperature does not take place, and the term afebrile erysipelas is applied. In other cases the infection is such, and the fever is so high that the term hyperpyretic is applied If the swelling is extensive and pressure upon the blood-vessels is such that necrosis of the skin occurs, the term black or gangrenous erysipelas is employed.

Complications.—Septic pneumonia, pleurisy and

meningitis, while not common, are the most frequent. Endocarditis, bronchitis and nephritis, septicemia, pyemia, meningitis and thrombosis of the cerebral capillaries or sinuses and edematous laryngitis occur occasionally.

Diagnosis.—This is not difficult. The fever, eruption, with burning, swelling, tension, tingling and albuminous urine, render it easy to recognize.

ERYSIPELAS.	CHRONIC DERMATITIS.
1. History of contagion.	1. History of injury, exposure, poisoning, etc.
2. Acute affection.	2. Runs a chronic course.
3. Tending to spread peripherally.	3. Not a creeping lesion.
4. Presence of blebs.	4. Blebs usually absent.
5. Intense shining redness.	5. Lesions have a dull, soggy appearance.
6. Line demarcation.	6. No line of demarcation.
7. Regularly and abruptly raised outline.	7. Outline irregular and not abruptly elevated.
8. Severe constitutional symptoms.	8. No constitutional disturbances

ERYSIPELAS.	ERYTHEMA SIMPLEX.
1. History of contagion.	1. Not contagious; history of indigestion.
2. Severe constitutional symptoms.	2. Mild constitutional symptoms.
3. Line of demarcation.	3. Limit of lesion not distinct.
4. Deep inflammation.	4. The inflammation very superficial.
5. Intense shining, redness and swelling.	5. Skin red, but not swollen or glossy.
6. Formation of blebs.	6. No presence of blebs.
7. Eruption spreads slowly and peripherally from central point.	7. Eruption appears suddenly without creeping.

8. Lesions last for a week or longer.
9. Diffuse redness.

ERYSIPELAS.

1. Usually caused by contagion.
2. Presence of blebs.
3. Desquamation.
4. Skin uniformly red and puffy.
5. Line of demarcation distinct and regular.
6. Constitutional symptoms severe.
7. Eruption frequently limited to face.
8. Burning to the touch.

ERYSIPELAS.

1. Frequently history of contagion.
2. Severe constitutional symptoms.
3. Intense shining redness and edema.
4. Creeping eruption, spreading peripherally.
5. Inflammation very acute and deep-seated.
6. Intense burning and little pruritus.
7. Very painful on pressure.
8. No discharge except from erupted blebs.
9. Vesicles form later.
10. Lasts for a few days.
11. Line of demarcation distinct.

8. Lasts but a day or two.
9. Occurs usually in patches.

URTICARIA.

1. Caused by eating fish, oysters, etc.
2. Presence of wheals.
3. No desquamation.
4. Skin irregularly swollen and inflamed.
5. Limit of eruption irregular and indistinct.
6. Slight constitutional symptoms.
7. Not usually limited to one part of body.
8. Itching and burning, but little pain on pressure

ERYTHEMATOUS ECZEMA.

1. Not contagious, frequently history of eczema.
2. Accompanied by mild symptoms.
3. Less edema and glossy redness.
4. Not essentially a creeping disease.
5. Inflammation less acute and superficial.
6. Intense itching and some burning.
7. Not very painful on pressure.
8. Usually some secretion.
9. Vesicles form early, if at all.
10. Eruption lasts for a week or more.
11. No line of demarcation.

Prognosis.—This is favorable in healthy, robust subjects, while alcoholics, the aged and enfeebled, infants in which infection has occurred at the umbilicus, gangrenous cases, those in which thrombosis of the sinuses occurs, and those in which the larynx is involved are all unfavorable. In those cases in which recovery takes place convalescence is slow, the patient continuing weak and anemic.

Treatment.—The patient should be kept in bed and should be isolated, especially in hospitals. Obstetricians and surgeons should avoid cases of erysipelas.

The patient's diet should be liquid, and highly nutritious gruels of wheatens, oat meal, granum, sago. Should the case assume a typhoid type, egg-nog, wine, whey, beef tea may be required. The patient should take plenty of water and the bowels should be thoroughly awakened. Apart from the water, weak lemonade, lime juice in water, butter-milk and skimmed milk may be allowed. He should be bathed frequently with a 5 per cent. solution of *boric acid.* The bed linen, as well as the patient's bed robes, should be changed daily.

The employment of local applications is demanded by many patients. It is doubtful if they are of much service in any case, while in many cases they are positively injurious. Cold applications have a more favorable influence than warm or hot ones. The exclusion of the air may be of service in some cases. Cold water dressings are harmless and may be of benefit in mild cases.

Ichthyol 50 per cent. in *lanoline* is thought by some to be highly beneficial. Before it is applied the affected part should be cleansed with soap and water and then washed with a solution of *bichloride of mercury*.

Veratrum viride, one drachm of the tincture mixed with three ounces of water, and applied locally, is of service in those cases in which this remedy is indicated internally.

Belladonna one part, *glycerine* one part, and water eight parts is of service in those cases in which the remedy is indicated internally. A solution of *sodium salicylate*, one to twenty of water, applied to the part by means of several layers of gauze, and the whole covered by oiled silk may be useful.

The application of a poultice of cranberries that have been cooked and macerated is claimed by many to be of service.

In the highly septic cases the local application of a solution of *echinacea*, one to eight, has been of service. In cases in which there is severe burning, and where vesicles are present, a solution of *cantharis*, one to twelve parts of water, and the same remedy internally, has been of service. A similar use of *rhus toxicodendron* has been of benefit.

Injections of a one to two per cent. solution of *carbolic acid* in the surrounding parts have produced abscess, are painful and should be avoided, as well as the use of *pilocarpine*, till physiological action ensues. Scarifications in the healthy tissues and the application of gauze wet with a solution of *bichloride of mercury* 1–1000 are thought of service by some.

Rhus toxicodendron. — This remedy should be studied in cases of vesicular erysipelas. The inflamed surface is bright red and shining. There is intolerable itching. The itching and burning are aggravated by touching or moving the parts. In time the swelling increases and the parts become edematous and of a dark bluish redness. The symptoms are worse during the night and often assume a typhoid type. The patient is restless, and the pains in the back and the extremities are worse during the night, and are temporarily relieved by motion.

Cantharis.—This remedy is frequently indicated following *rhus tox.* The skin is severely inflamed, and there is a tendency to the formation of large blisters. There are burning sticking pains, and there are frequently urinary complications.

Apis mellifica.—This remedy should be remembered in those cases that are characterized by pronounced edema of the parts. There are stinging, burning, pricking pains in the affected parts. The patient is thirstless. The urine is scanty and high colored.

Graphites.—This remedy should be remembered in those cases where there is a tendency to repeated attacks. It frequently begins upon the right side and passes to the left. There is burning, tingling pain. The lymphatic glands are swollen and indurated. In many of these cases there is a moist sticky eruption, fissures and cracks at the corners of the mouth, on the fingers and between the toes.

Hydrastis.—This remedy is of service in repeated

attacks, the disease wanders over the face and scalp. There is great restlessness and frequently a history of catarrhal affection of the nose.

Pulsatilla.—This remedy should be remembered in the wandering type of the disease.

Arsenicum.—This remedy should be studied in those cases in which there is a gangrenous tendency. *Lachesis* should be compared.

Veratrum viride.—This remedy should be studied in those cases in which the process is intense. There is great arterial excitement, the pulse is rapid and full, and is often attended with a general perspiration, nausea and vomiting. There are apt to be evidences of intense cerebral congestion and indications that the process is becoming phlegmonous in character.

Belladonna.—This is the remedy in the red smooth variety. Apart from the eruption the face is flushed, the eyes are red, the carotids throb violently, there is apt to be a throbbing headache which is worse from motion, touch, light and noise. The congestion is such that the patient cannot lie down. The pains come suddenly, last indefinitely and cease as suddenly. The urine is scant and is passed in drops. There is a tendency to the development of a phlegmonous form. The pains are lancinating and stinging in character, and are associated with a sensation of throbbing in the deeper tissue.

Atropine should be studied in those cases in which *belladonna*, although apparently indicated, does not produce the desired results.

ACUTE RHEUMATIC FEVER.

Synonyms.—Rheumatic Fever; Acute Inflammatory Rheumatism.

Definition.—This is an acute infectious febrile disease, characterized by inflammation of the joints, acid sweats, constitutional symptoms, and a tendency to the involvement of all serous membranes.

Etiology.—It occurs most frequently during the cold, damp months and especially in those of lowered vitality, whose occupation exposes them to the inclemencies of the weather. Very cold, dry weather is not as liable to produce it as much as dampness.

There appears to be an hereditary tendency to it. During infancy and childhood, it is more common among females than males, while later in life it is more common among males.

The clinical theory that it was dependent upon an excess of lactic or uric acid in the tissue has been abandoned, as well as the theory that it was of nervous origin.

The infectious theory is the one now recognized that it is dependent upon. It occasionally occurs in epidemic form; it is self limited; it mainly affects the young, the anemic and albuminuric, and leukocytosis and relapses occur.

Pathology.—The affected joint is swollen, hot and red, and the synovial lining of the joint is congested and swollen. The joint cavity is distended with fluid which is usually serous, but it may be turbid and

rarely purulent. The cartilages within the joint and the covering of the articular surfaces are eroded in severe cases.

The blood shows pronounced anemia, both the red blood cells and the hemoglobin are reduced one-half. The serous surface of the heart is affected in a percentage of cases, while myocarditis is not uncommon. There may be prodromes, as lassitude, headache, coated tongue, constipation, chilliness, tonsillitis, pharyngitis and epistaxis.

Symptoms.—The symptoms appear suddenly, the temperature rising to 103° F. or 104° F., and is attended with pain, tenderness, swelling and redness of one or more joints. The large joints are the ones most frequently affected. There is a tendency to affect the joints symmetrically. The joints are painful, tender to the touch, red and swollen. The pulse is 100 to 110, soft and compressible. There is headache, a delirium of a violent character, possibly coma, a form that is known as "cerebral rheumatism," which is a severe type.

The urine is scanty, high colored and of high specific gravity. The phosphates and urates are high, there may be a slight trace of albumin. The saliva is highly acid; apart from a hyperexia, the mind is usually clear. There are copious acid sweats. Nodules, which are painful, tender and of various sizes, appear, especially in children. Petechia and urticaria occasionally occur. Follicular tonsillitis appears in certain cases. One attack rather predisposes to another.

Complications.—Pericarditis, endocarditis (33 per cent.), pleurisy, tonsillitis, bronchitis, broncho-pneumonia, chorea, exophthalmic goitre and nephritis are the most common complications.

Diagnosis.—This is based upon the sudden onset, the continuous fever, profuse sweats, the involvement of the joints, the tendency to involvement of the serous membranes and the tonsillitis and pharyngitis before or after the attack.

Rheumatism should be distinguished from pyemia and gout.

ACUTE RHEUMATISM.	PYEMIA.
Both occasion arthritis, sweats, cardiac complications and cerebral symptoms.	
1. The fever rises high, but no repeated chills.	1. Periodicity, rigors, fever, sweats and metastatic abscesses.
2. Constitutional disturbances medium.	2. More pronounced.
3. Rather an abrupt onset.	3. An obscure focus of suppuration exists.

ACUTE RHEUMATISM.	ACUTE GOUT.
1. There may be hereditary history.	1. Such is generally present.
2. Involves the larger joints.	2. Involves the smaller joints.
3. Duration of an attack is from weeks to months.	3. Duration of an acute attack is from one to two weeks.
4. No tophi.	4. Are present in cases of any duration.
5. Cardiac complications are frequent, but seldom interstitial nephritis.	5. No endocarditis, but nephritis is common.

ACUTE RHEUMATISM.	ACUTE SYNOVITIS.
1. Several joints are usually involved.	1. Usually but one joint involved.

2. Constitutional effects more pronounced.	2. Not present.
3. Acid sweats and cardiac complications the rule.	3. Not present.
4. Duration is weeks	4. Not so long.

Prognosis.—This is usually favorable in non-complicated cases. It may result fatally in cases characterized by hyperpyrexia and cerebral rheumatism, endocarditis or hemorrhagic tendencies. In mild cases the duration may be but one week, while in others it may last for months. The severity of the disease bears a direct relation to the number of joints involved. The complications should be taken into consideration in the prognosis.

Treatment.—Persons subject to attacks of the disease should avoid excessive muscular exertion and exposure to cold and dampness. They should wear woolens next to the skin, which should be kept active by a tepid soap bath at night, and a cool bath in the morning, followed by thorough friction. The patient should spend considerable time out of doors. Occupations that lead to undue exposure and cold should if possible be avoided. A joint that is used a great deal thus becomes exhausted and is the one that is most liable to be affected. The clothing should be adapted to the life of the patient; if he is a person exposed to all forms of weather, flannel should be worn next to the skin. If, on the other hand, he is a business man living in a warm heated house, who rides to his office and spends his business hours in a warm office, he should wear thinner underclothing. If it is flannel, it should be

of moderate weight. If it is thicker, it should be washed more frequently. In this case the outer clothing should be changed as the season demands it. The selection of a suitable climate is often rather difficult, but there are some locations where the climate is warm and fairly dry. During an attack, blankets of light and medium weight should be used on the bed. The body and sleeves of garments should be cut so that they can be put on and removed without causing the patient undue distress. The joints should be encased in cotton batting, not confining it to the inflamed joints. If the pain is severe, applications of cloths wrung out of hot water, and covered with oil silk, or some material that will retain the heat, is beneficial. Heat applied by means of a hot air bath is of great service. A towel or gauze wrung out of absolute alcohol and applied to the joint gives relief. Application of cloths wrung out of a warm ten per cent. solution of *bicarbonate of soda* is also of benefit. This should be renewed every three or four hours. The limb should rest upon pillows that can be changed to give the most comfortable position. The patient should be sponged with tepid water from time to time to reduce the fever, assist elimination and keep the skin clean, thus doing away with the odor from perspiration. The room should be dry, warm and thoroughly ventilated. The patient should be kept in bed until all pain has left the joint, the temperature is normal and until the heart has regained its normal tone.

Many of the statements that are current regarding

the diet during an attack of rheumatism are yet to be proven. An improper and insufficient diet is injurious, in so far as it lowers the bodily resistance. During an acute attack the diet should be similar to that employed during any acute fever. Articles of diet containing *nuclein purin* bodies should be omitted.

During the acute stage the patient should be given a milk and farinaceous diet. If milk cannot be taken, clam or oyster broths (without the clam or oyster), raw oysters, milk toast, barley, arrow-root, or oatmeal gruel, buttermilk, kumiss, soups and broths may be allowed. Meat extracts and animal broths should be limited.

The patient is usually thirsty, and lemonade, milk, buttermilk, kumiss, carbonated water or Vichy may each be given at times.

The return to solid foods should be gradual and only after several weeks have elapsed and the temperature has reached normal. Fish, oysters, eggs, later chicken, and still later meats, should be the order of return to solid food. At the same time there may be gradually added well baked potatoes, well cooked spinach, cauliflower or stewed celery. Fresh fruits may be allowed, but sweets should be withheld. If anemia is a prominent symptom, the return to a part solid diet should not be delayed too long. The meal should not be so large that it will tax the stomach. To avoid this a glass of milk, egg-nog, or a glass of broth may be given between the regular meals. Alcohol is contraindicated during the acute stages, except when the patient has been addicted to it.

Aconitum napellus.—This remedy is frequently overlooked during the early stages of the disease, especially in young subjects. The patient is restless, and excited by the pain, expresses great dread and fear of the pain and fears as regards the results. There are great thirst, hard, strong and full pulse, and there is a sensation of distress referred to the region of the heart. Palpation shows the heart to be greatly excited. While this remedy may not wholly stop the progress of the disease, it will certainly modify it. Under its influence a perspiration is started, the heart's action becomes quieted, the mental anxiety is controlled and the patient is greatly relieved, when another remedy is indicated, and this is frequently *bryonia.*

Bryonia alba.—This remedy is indicated when the stage of congestion has passed and serous exudate is appearing. The joints are swollen and reddened and there are streaks of red extending up and down the limb. The parts are sensitive to the touch and are extremely aggravated by motion. The capsule of the joint is distended, and the pulse is hard, frequent and tense. The mouth is usually dry and there is thirst for large quantities of water.

Mercurius.—This remedy is often of service following *bryonia* when inflammation clings to one joint and the pain is greatly aggravated at night. The profuse sour perspiration is usually a pronounced symptom. The bowels are usually loose and there is a tendency to diarrhea.

Rhus toxicodendron.—This remedy is indicated in

those cases in which the pains are aggravated while the patient is quiet, during damp and rainy weather, after midnight and before and during storms. He finds relief by moving about, although there is stiffness when first beginning to move. If the movements are continued, there is a sensation of relief for a time, but, if long continued, he complains of a paralytic sensation, and of a lassitude and powerlessness which compel him to be quiet, but this again aggravates.

Kalmia latifolia.—This remedy should be remembered in those cases in which the heart is affected, either primarily or secondarily with the rheumatism. There are severe pains referred to the cardiac region. The rheumatic process and pains extend from the centre to the periphery and shift suddenly. There is oppressed breathing and palpitation of the heart, which shows acute endocarditis. The pulse is weak and quick, or slow and feeble, and there are pain and pressure in the arms.

Veratrum viride.—This remedy is at times of great importance in controlling great arterial excitement, when the softened rheumatic heart is being injured by the excessive arterial excitement. The pulse is full, hard and bounding, and in the heart's action the pulsations are loud and strong. The patient is usually of the plethoric type.

Pulsatilla nigricans.—This remedy is indicated in cases that tend to become chronic, subacute cases in which the fever is not high. The pains shift frequently from part to part; they are violent, drawing

and jerking in character. There is but little redness or swelling of the involved part. The patient complains of chilliness and is thirstless. These patients are of the delicate type, the gastric motility is lowered and as a result their digestion is slow and imperfect. There is regurgitation of food following the meal, and there is a sensation of distress and tightness, especially if fat has been taken.

Cimicifuga.—This remedy should be remembered in delicate, nervous, hysterical women, who suffer more or less from ovarian and uterine diseases. There appear to be more or less neuralgic pains accompanying the rheumatism. The affection changes locations and as a result the pains are continually in a new location. It is apt to be located in the fleshy part of the muscles, as well as at the articulations.

Phytolacca decandra.—This remedy is indicated when the rheumatism affects the fibrous tissue, especially that covering the bones. The character of rheumatism that this assists in controlling is that of a periosteal type, in cases when there is a syphilitic taint. It also affects the rheumatism of the tendinous attachments of the muscles.

Mimosa.—This remedy is used extensively in South America, when there are sharp, lancinating, sticking pains in the back and limbs. The body is hot, and there is profuse sweat over it.

Colchicum.—This remedy and its active principle should be remembered in those cases in which there is a gouty tendency. The pains are of a sticking character and are worse towards evening. The in-

flamed joint is extremely sensitive to touch and the pains shift from joint to joint.

Oleum gaultheria.—This remedy should be remembered in those cases in which the rheumatic pains partake much of the character of neuralgia.

Chamomilla.—This should be studied when there is extreme sensitiveness to pain and the patient is irritable and cross. The part feels much as if paralyzed.

Ferrum.—This remedy and its compounds are frequently of service when the patient shows the peculiar symptoms of anemia that are characteristic.

Chininum sulphuricum should be remembered with the remitting type of fever and the tinnitus aurium.

Sodium salicylat. has a chemical action and should be employed in from five to ten grain doses every three hours for a few days. It should not be continued too long.

SEPTICEMIA.

Synonym.—Bacteremia.

Definition.—This is a disease in which there are pathogenic bacteria and their toxins in the blood, severe constitutional symptoms without suppuration.

Etiology.—It usually results from some local infection as peritonitis, appendicitis, pneumonia, enteric fever or gonorrhea. In certain cases it is impossible to demonstrate any local point of infection; such a case is termed one of cryptogenetic septicemia.

Pathology. — The blood reveals a pronounced change both during life and at the post-mortem. An inflammatory leukocytosis exists. Should the personal resistance be low and the infection be overwhelming, leukocytosis may not be present, but on the other hand a hypoleukocytosis may exist. As a rule, however, a decided leukocytosis is present. The erythrocytes and the hemoglobin are correspondingly reduced. Olegocythemia is the rule in the majority of cases. At the post-mortem the organs may show a hyperemia and cloudy swelling.

Symptoms.—These usually begin with a chilliness or a decided chill, followed by a fever which remits, but remains high all the time, 103° F. The pulse is rapid and often becomes dicrotic; gastro-intestinal symptoms appear; anemia develops rapidly and purpuric symptoms are observed. There are mental disturbances, as delirium, and melancholia. The urine is high colored, of a high specific gravity and con-

tains albumin and bacteria. The duration varies from twenty-four hours to weeks or months.

Diagnosis.—If the primary focus is demonstrated, this is easy; but if not, the type of fever, the pulse, anemia and leukocytosis should reveal the true condition. It is frequently mistaken for a malarial infection; the latter, however, should reveal the plasmodium on examination of the blood.

Prognosis.—This should be considered serious. A streptococcus infection is considered a serious type. A marked leukocytosis indicates either a good resistance or a severe infection.

Treatment.—This is prophylactic so far as the thorough opening and draining of all septic foci are concerned. The skin, bowels and kidneys should be kept in normal condition that the poisons should be eliminated in so far as is possible. The administration of a high rectal enema of hot saline solution two or three times a day is beneficial. From one to two quarts should be used at a time.

The frequent sponging of the body with cool water followed with an alcohol rub is beneficial. The coal tar products should be avoided, as their action upon the heart and blood is injurious, and it is doubtful if the reduction of temperature brought about in such a manner is of any benefit. The diet should be one that is highly nutritious, easily digested and of sufficient quantity. Milk, eggs, egg-nog, koumiss, beef extract and broths should be given. If the stomach will not tolerate any kind of food, it should be introduced by the rectum. The patient should be en-

couraged to take a large amount of fluid. Diluted red wine, mild lemonade, charged waters, etc., are of service.

The physician should not be deceived and trust to remedies to do the work when the blood count tells him there is a large collection of pus at some point, nor should he expect anything apart from a temporizing effect from some remedies.

A most thorough examination is demanded that the seat of the infection may be located. When once located, no temporizing work should be tolerated, but the parts should be thoroughly opened and all necrosed tissue at once removed; after which the parts should be irrigated with *peroxide of hydrogen* or *bichloride of mercury*, and thoroughly drained, either by a tube or iodoform gauze. The drainage should be changed frequently to ascertain whether it is doing its work well. Cellulitis may require several incisions.

The intravenous or subcutaneous injections of a normal saline solution have given favorable results even in grave cases. They assist in the elimination of toxins. One pint of a normal salt solution into the subcutaneous tissue is very satisfactory.

The *antistreptococcus serum* has been of service in many cases. A dose of from 15 to 25 c. c. is repeated in from twelve to twenty-four hours. The instructions for its use accompany the serum.

Collargol is a non-poisonous allotropic silver. It is employed as an inunction or as an intravenous injection. The back, loins or buttocks are usually the parts selected for the inunction. The parts are first

cleansed, when 45 grains are thoroughly rubbed in, taking from twenty to thirty minutes for the task. This should be repeated every twenty-four hours for three successive days. Thirty grains should be used in the youth and fifteen grains for the child.

When insomnia becomes an annoying condition, it can often be corrected better by the application of cold water to the head than by means of any of the hypnotics. *Hyoscin hydrobrom.* is probably the most reliable when nausea is very distressing. A drachm or two of iced champagne is often beneficial.

Chininum arsenicosum should be remembered in cases characterized by great prostration. While the fever is continuous, it is highest at night. The patient complains of great thirst, is restless or uneasy and there is burning referred to the stomach and anus. The body is covered with a cold clammy perspiration. This remedy should be compared with *chininum sulphuricum*, which is greatly abused, although a remedy of great importance.

Crotalus horridus.—This remedy is indicated in low septic conditions when there is a disorganization of the blood taking place and characterized by a tendency to hemorrhages and gangrene. The patient is greatly prostrated with trembling of the whole body and frequent fainting. On account of the disorganized condition of the blood, the body presents a yellow jaundiced condition (hemic jaundice). The hepatic and epigastric regions are sensitive to touch and there is vomiting of bile and dark colored bloody material.

Lachesis.—This remedy is indicated in cases characterized by extreme nervous prostration and disorganization of the blood. There is a hypersensitiveness of the neck and about the waist and there is bleeding from about the gums. The tongue is small, dark and trembles when being protruded. There is violent burning of the affected parts and necrosis and gangrene are apt to result without much suppuration.

Eucalyptus globulus.—Both in the laboratory and clinically, this remedy has shown its influence over septic conditions. The body of a rabbit, into which *eucalyptus oil* had been injected, mummified, but did not decay, and the blood, which had been withdrawn, did not decompose. It should be remembered in all septic states.

Baptisia tinctoria.—This remedy should be studied in cases characterized by sepsis, putrescence and low fevers. The face presents a dark red appearance with stupor. All the excretions from the body are fetid and the whole condition is that of septic intoxication.

Echinacea angustifolia.—This remedy should be studied in both acute and chronic auto-infection, acute septic infections, pyemia and septicemia. There is a terrible stench emanating from the patient.

Potassium permanganate has been employed with great benefit in many cases when applied locally in the form of a moist dressing and when administered internally. There is great prostration; the patient is so thoroughly saturated by the toxemia that he is prostrated. There are pains in the extremities with headache. The pulse is very rapid and irregular.

PYEMIA.

Definition.—This is a condition in which there are multiple abscess formations throughout the body, together with the constitutional symptoms that would accompany such a condition.

Etiology.—The original focus can usually be determined such as empyema, appendicitis, peritonitis, otitis media and osteomyelitis.

Pathology.—Circumscribed collections of pus may be found in various parts throughout the body. While no part is exempt, the liver is the most common place affected. The abscess is the result of a septic embolus. The blood changes are very similar to those met with in septicemia.

Symptoms.—These are ushered in with a chill, followed by fever and sweating. There is loss of appetite, vomiting and diarrhea. The syndroma appear with decided regularity each day. There are emaciation and anemia, which become more pronounced as the abscess forms and becomes larger. Local symptoms develop as pain, which may be intense, and in certain organs, as in the liver and spleen, a bulging and tenderness to pressure may be elicited. A malignant endocarditis, pericarditis or pleurisy may develop. An embolic abscess of the brain will produce a group of symptoms depending upon its location. The duration is from a few days to a month or two.

Diagnosis.—This is based upon the primary focus of infection, the chill, fever, sweating and the leu-

cocytosis. It should be distinguished from malaria, which is easy if the plasmodium of malaria is demonstrated in the blood.

Prognosis.—As a rule this is unfavorable.

Treatment.—This is surgical and consists in the management of the original point of infection and the thorough evacuation of all metastatic abscesses and in the main treatment is identical with that of septicemia. If possible every infected point must be opened and thoroughly drained.

The patient must receive a most nutritious diet, such as milk, buttermilk, egg-nog, beef extract and broth. He should be given plenty of fluid, lemonade or light wines, if he has been accustomed to them.

Remedies have not the desired effect unless every abscessed cavity has been thoroughly opened.

Eucalyptus should be remembered in many of these cases when there are symptoms of atonic dyspepsia and there is a general septic state.

Baptisia tinctoria should be remembered when there is a septic condition of all the fluids and discharges.

Echinacea.—This should also be remembered in septic cases, when the patient complains of alternate chills and heat with exhaustion.

Chininum arsenicosum.—This remedy is of value in those cases in which there is a septic condition and the patient is greatly prostrated and exhausted.

Carbolic acid should also be remembered in septic conditions.

Nux vomica, *lycopodium*, *colocynthis*, *sulphur* and *iodide of sodium* should be studied in certain cases.

Pyrogen has been employed in many septic cases with chills on the back between the shoulders with mingled heat and sweats, and the whole group of symptoms that would be produced by such a condition.

HYDROPHOBIA.

Synonyms.—Rabies; Lyssa.

Definition.—This is an acute specific infectious disease, characterized by tonic spasms and constitutional symptoms. It is a disease of the lower animals, especially the dog, which is communicated to man by inoculation.

Etiology.—It is undoubtedly due to a specific micro-organism contained in the saliva, toxins of which act specially upon the central nervous system. The period of incubation is usually from three to six weeks, but it may remain latent from ten to twelve months.

Pathology.—The mucous membranes of the gastro-intestinal tract, the respiratory system and the kidneys are congested. There are hemorrhages into the cerebro-spinal system and congestion of the spinal cord and brain and exudate into the perivascular system. The toxins are found in the brain nerves and spinal cord.

Symptoms.—At the close of the period of incubation, the wound becomes painful and itching, burning, tingling, and sharp pain may be complained of. The scar tissue may break down and suppuration and ulceration of the tissue may occur. During this period the patient is thirsty, irritable and mentally depressed. The temperature may be above normal, the muscles of the face are drawn and there is pallor and a peculiar facial expression. The speech is fre-

quently interrupted by a sighing inspiration. The patient refuses to speak of the bite. The sleep is restless and there is present thirst, difficulty in swallowing, loss of appetite, nausea and epigastric pain. The respirations are rapid and shallow, while the heart's action is greatly accelerated. Great nervous excitement with delirium appears upon the second or third day. The eyes are bright and sparkle, pallor becomes pronounced. The mucous membrane becomes congested and is covered with a thick tenacious mucus, which the patient endeavors to dislodge and expectorate.

About this period thirst becomes a prominent symptom, there is great difficulty in swallowing, especially fluids. The attempt at deglutition is attended with violent spasmodic contractions of the muscles. These are followed by tetanic convulsions with opisthotonos and temporary cessation of respirations. The tendon reflexes especially are increased. The symptoms subside only to recur again at any attempt to swallow fluid, a bright light, a loud noise, a breath of air or the sight of water. The delirium is usually intermittent. The sexual desire is at first increased and may become more pronounced. The urine may contain albumin, blood and sugar. As the spasms are repeated, the patient becomes exhausted and wasted in flesh.

Diagnosis.—This is based upon the knowledge of the infection by a rabid animal and the appearance of the peculiar tetanic spasms, delirium and the albumin, blood and sugar in the urine.

Prognosis.—From 5 to 50 per cent. of these cases die. Pasteur treatment has assisted in reducing the death rate. When the symptoms have once well developed, the case ends fatally in from four to five days.

Treatment.—All dogs should be systematically muzzled. In case of being bitten, the wound should be sucked, preferably by the patient himself, and the mouth immediately washed. Cupping may be employed to withdraw the blood. Following this, the wound should be cauterized as soon as possible by a hot iron, the paquelin or galvano-cautery. If this is not at hand, a stick of *silver nitrate*, pure *phenol*, or *potassium hydrate* should be used and the wound not be allowed to heal. The excision of the wound is performed by many. The dog should not be killed unless it is positive that he is suffering from hydrophobia, but he should be taken care of till the disease has had time to develop, that it may be known whether he was infected or not.

A warm or hot bath is of service in allaying the nervous condition. Inhalation of *chloroform* is of service for the paroxysms.

Belladonna and *cantharis* are each of service in certain cases, but are not curative. When the hyperemic condition of the spinal cord is the leading symptom, *stramonium* should be studied.

The treatment as organized by Pasteur, when introduced early, gives the most positive benefit of anything.

During the last stages, *morphine sulphate* may be employed as a palliative when all other agents have failed and death is waited for.

TETANUS.

Synonym.—Lockjaw.

Definition.—This is an infectious disease, characterized by spasms of the muscles, particularly those of mastication.

Etiology.—This is dependent upon the bacillus tetanus. It is found in horse manure, cultivated soil and the dust of streets and houses. Of the domestic animals the horse is the most liable to become infected. The infection occurs in bruised, lacerated or septic wounds. Infants may be attacked through an infection of the umbilicus. Women may be infected during delivery. It is prevalent in certain hot countries and among dark skinned races.

Pathology.—There are no definite post-mortem changes. There is congestion of the spinal membrane and nerves. The bacillus is located near the wound. The toxins appear to be responsible for the manifestations of the disease.

Symptoms.—The important symptom is the tonic spasms in the voluntary muscles which, while they occur and recur at varying intervals, there is never a complete relaxation, even during sleep.

The spasm usually begins in the cervical region and may simulate a torticollis. This is soon followed by trismus, with inability to open the mouth. The facial muscles show a strained appearance and a peculiar grin, the "risus sardonicus." Gradually the muscles of the abdomen become firm and contracted. The

body may be bent backward, opisthotonos, or forward, emprosthotonos, or to one side or the other, pleurosthotonos.

In certain cases the muscles of the glottis may be affected, which causes difficult, noisy respirations, and in some cases asphyxiation takes place. The pulse rate is increased, the temperature is elevated and high fever, 110° F., may show itself just before the fatal issue. There is usually profuse sweating during the disease. In fatal cases death occurs in from two days to a fortnight. Cases may be prolonged and ultimately recover.

Diagnosis.—This is based upon the history of an injury, the development of trismus and the absence of other causes of tonic muscular contractions. It should be distinguished from strychnine poisoning, hydrophobia, tetany, hysteria, cerebro-spinal fever.

Certain local causes which restrict the motion of the inferior maxilla should be borne in mind, as dental irritation, tempero-maxillary ankylosis, parotitis and acute pharyngitis.

TETANUS.	STRYCHNINE POISONING.
1. Trismus is well marked.	1. It is illy marked or absent.
2. The rigidity persists between the spasms.	2. It does not persist between the spasms.
3. The onset is more gradual and its course is not so rapid.	3. The onset of the symptoms is rapid and the case runs a rapid course to recovery or death.
4. The extremities are not greatly affected.	4. The extremities are markedly affected.

TETANUS.	HYDROPHOBIA.
1. The mind may be clear.	1. It is not clear.
2. Facial expression is not wild.	2. Facial expression is wild.
3. There is a combined rigidity.	3. There are clonic spasms without continued rigidity of the body.

Prognosis.—The infantile form is fatal; of the ordinary tempero-traumatic forms, from 15 to 30 per cent. recover. A high temperature, persistent insomnia, delirium and the development of squint are unfavorable symptoms, while if there is a long period of incubation, chronicity and a restricted involvement of the muscles the prognosis is more favorable.

Treatment.—The wound should be thoroughly opened and cleansed with *peroxide of hydrogen*, and treated antiseptically. All blank cartridges, wadding and powder should be removed, as may result from the 4th of July celebration. All lacerated tissue should be removed. After the thorough cleansing, the patient should be placed in a darkened and quiet room, with the ear plugged with cotton and all draughts of air excluded. Many claim that use of tetanus antitoxin is highly beneficial. Hot baths in connection with other adjuvants are frequently beneficial.

The umbilical cord should be cut close to the child, and dressed with *boric acid*.

Gelsemium should be studied in these cases, as it has proven curative, 15 drops of a tincture in one-half a glass of water has been used, and a teaspoonful of this administered every two hours.

Passiflora incarnata has been curative in cases of both man and horse; it should be given in from twenty to thirty drop doses.

Hypericum has been curative in cases in which the muscles have been rigid and the nerves suffer from the effect of traumatism.

Strychnia and *nux vomica* have been employed in all schools of medicine.

Carbolic acid hypodermically, one-sixth of a grain every two hours for seventeen days, is said to have cured traumatic tetanus.

Hyoscyamin, gradually increasing the doses, has been of great service.

Creosote in large doses, hypodermically, has given good results in traumatic cases.

Nicotin has been of service in many cases, but it must be handled with great care.

Oxygen is autogenetic to the germs and it should be admitted to the wound as freely as is possible.

ANTHRAX.

Synonyms. — Malignant Pustule; Wool-Sorter's Disease; Charbon; Splenic Fever.

Definition.—This is an acute, infectious, non-suppurative disease due to the anthrax bacillus, characterized by an extensive edema, and in some cases grave constitutional disturbances. In some cases the infection becomes general.

Etiology.—This disease occurs in those who work about animals or their products. The infection in men is dependent upon a solution of the continuity of the skin, or by the lungs, or digestive tract.

The bacillus anthrax is the largest of pathogenic bacteria, is cylindrical in shape and of great vitality.

Symptoms.—The period of incubation is about one week. It may develop externally or internally.

External anthrax malignant pustule develops upon an exposed surface, as the hand, face or arm, wherever inoculation has occurred. It is indicated by pain at the inoculated point, which may be itching or burning in character. This is soon followed by the appearance of a red spot which becomes papular, then vesicular, and contains a clear blood serum. The surrounding tissue becomes indurated. The original vesicle bursts, while other vesicles appear upon the indurated mass, which is gradually extending, and involving more tissue. The surrounding tissue becomes edematous. Meanwhile the infection spreads along the lymphatics, which become red-

dened, swollen and tender. The lymphatic glands are enlarged. A brown eschar forms in the center of the induration within thirty-six hours.

With the development of the local symptoms general symptoms appear, the temperature and the pulse rate are elevated, while later the temperature may become subnormal and death may result in from three to five days. In favorable cases a scab forms over the vesicle, the induration slowly disappears or the eschar may slough away, leaving the wound to heal.

The edema of malignant anthrax usually begins in the eyelids and gradually extends to the face, it may also occur on the hands and arms. Papules and vesicles do not appear, but the edema may terminate in gangrene. Recovery in this form is unknown. A characteristic of both forms is the absence of mental anxiety.

The internal form may be intestinal or bronchial. The former results from the ingestion of some form of infected material. The onset of the disease is indicated by a chill, intense symptoms of intoxication, such as vomiting, diarrhea, bloody stools, fever, abdominal tenderness and general pains. The inspirations become difficult, cyanosis and mental derangement and convulsions may be observed. The blood is disorganized and unoxygenated, and ecchymosis appears and splenic enlargement is present.

The bronchial form, usually known as wool-sorter's disease, is observed among those who handle wool and hides. The onset is sudden, a chill, high temperature, general pains and prostration. The patient

complains of thoracic pains, rapid and feeble heart's action and dyspnea. The signs of bronchitis are present. Some cases are attended with vomiting, diarrhea and marked cerebral symptoms, while in other cases collapse and death may result within twenty-four hours. Rag-picker's disease is very similar to that of wool-sorter's.

Diagnosis.—The external form is recognized by the clinical history and the local manifestations. A bacteriological examination of the contents of the vesicle is conclusive.

Prognosis.—This is unfavorable, death often results within twenty-four hours.

Treatment.—Disinfection of infected articles should be demanded. Animals dead from the disease should be burned. Animals should not be allowed to graze on infected pastures. Infected wounds should be thoroughly opened or excised and then dressed with a strong solution of *phenol* or powdered pure *mercury bichloride*; a local or general anesthetic may be required for this work. The injection round the infected parts of a solution of one-half per cent. *phenol*, two to five per cent. *tincture of iodine* is useful.

The remedies that have been of service in these cases are *anthracinum*, *arsenicum*, *secale* and *lachesis*.

GLANDERS.

Synonyms.—Farcy, Malleus Humidus.

Definition.—This is an infectious disease, especially of the horse, but communicable to other animals and man. It is characterized by nodular growths in the nostrils (glanders) and under the skin (farcy).

Etiology.—The specific cause is a micro-organism, the bacillus mallei. The contagion is given off in the discharge of the infected animal, and is transferred to man by an abrasion of the skin.

Pathology.—The lesion consists of granulomatous tumors composed of lymphoid and epithelial cells which contain the bacilli mallea. The tumors break down and liberate the micro-organism.

Symptoms.—Both glanders and farcy occur in man in an acute and chronic form. The period of incubation of the acute form is from three to five days. The onset of the acute form is indicated by the fever, redness and swelling. The nasal mucous membrane is at first dry and congested and there are nodular tumors which break down, forming ulcers which discharge a bloody or muco-purulent secretion. The submaxillary and cervical glands become enlarged and may suppurate. The air passages may become affected and a septic pneumonia may result. The breath is very offensive.

The chronic form of glanders is difficult to recognize. There is ulceration of the nasal mucous membrane. Acute farcy is indicated by the symptoms of

an acute infection, together with subcutaneous nodules or ulcer and a foul odor.

Diagnosis.—Acute glanders is easily recognized. The chronic form is more difficult. The agglutination test is of service in arriving at a diagnosis, as is the use of mallein, a product of the growth glanders. This is employed in the same manner as tuberculin for tuberculosis.

Prognosis.—Nearly all of the acute cases are fatal, while in the chronic form about fifty per cent. of the cases recover.

Treatment.—The treatment should be prophylactic. The patient should be thoroughly nourished and when inoculation has once taken place the lesion should either be excised or curetted and cauterized and then an antiseptic dressing applied. The galvanocautery may be used. In the nasal form antiseptic sprays and gargles of *phenol*, *peroxide of hydrogen*, or *potassium permanganate*, one grain to the ounce, may be used.

Potassium iodide two drachms and a half daily in broken doses, with hot baths, has been reported favorably. The remedies that have been mentioned are *aconite*, *arsenicum*, *kali bichromicum*, *mercurius*. The use of preparations from the infection, *glanderine* and *farcine* have been used with success.

ACTINOMYCOSIS.

Synonyms.—Lumpy Jaw; Bone or Tumor; Big Jaw; Ray-Fungus Disease.

Definition.—This is a chronic infectious inflammatory disease of cattle and pigs that is transmitted to man by the streptothrix-actinomydes.

Etiology.—Infection usually takes place through the mouth, teeth or throat.

Pathology.—There is a milliary nodule composed of a central mass of fungi surrounded by granulation tissue. The single nodule is about the size of a millet seed, many of them combined forming a large tumor around which the connective tissue is proliferated. In time suppuration and abscess formation take place. Actinomycosis of the skin and brain are rare.

Symptoms.—The symptoms appear slowly. If the disease occurs in the jaw, the swelling appears more rapidly. Abscesses soon form and pus exudes containing yellow granules, which under the microscope show the distinctive characteristic growths.

If the development occurs in the bronchi, bronchitis of a putrid character is present, while the sputum contains the fungus. Abscesses may form in the lung tissue. Should the growth occur in the intestines, the lymph nodules are enlarged and there is diarrhea, rapid emaciation and loss of flesh.

Diagnosis.—The chronic character of the disease, the swelling, suppuration and the granules in the pus

and the recognition of the fungus by aid of the microscope, render the diagnosis certain.

ACTINOMYCOSIS OF THE JAW.	SARCOMA OF THE JAW.
1. The course is very protracted.	1. Not so protracted.
2. Tendency is to suppurate.	2. Not so great.
3. The pus contains yellow granules, and the microscope reveals the Ray-fungus.	3. Not so.

ACTINOMYCOSIS OF THE LIVER.	ABSCESS OF THE LIVER.
1. The knowledge of the infection or the existence of the disease at the point of entrance is of service.	1. A clinical history of dysentery or some cause leading to abscess is usually to be found.
2. The presence of the Ray-fungus in the pus.	2. Not in the pus.

The condition is often confounded with pyemia due to other causes.

Prognosis.—If the disease is recognized early and radical operation is possible, recovery may result. If it involves the viscera the prognosis is bad. Metastasis is rare and when the focus is completely removed recovery is the rule.

Treatment.—The management of these cases is to a great extent surgical and means should be employed to prevent the spread of the infection. The discharges should be destroyed, preferably by burning. The strength of the patient should be supported; the diet highly nutritious; while the surroundings should be sanitary. If possible, the infected area should be excised. If this is impossible, the parts may be curetted. Caustics should not be depended upon to remove the diseased tissue. When the infected tissue

or the contents of an abscess has been removed, the cavity should be packed with gauze saturated with a preparation of iodine.

Kali iodatum.—This agent has a most decided action in the control of this disease. Morris and Shaw relate cases in which it was curative, administered in the IX. Ochsner and others administered it in much larger doses (90 grains three times a day), giving it in hot milk and following this by a half pint of hot water. In the case of the large doses, they are continued three days; then a week is allowed to elapse when they are repeated.

Tuberculin has been curative when it has been administered hypodermically for some time.

MILK SICKNESS.

Synonyms.—Trembles; Pecking Fever; Slows.

Definition.—This is an acute disease of cattle that is conveyed to man as a result of drinking the milk of affected animals.

Etiology.—This is not determined.

Pathology.—Few cases have arisen permitting a post-mortem. There are congestion and effusion of blood into the membranes. The liver and spleen are enlarged and softened.

Symptoms.—There are weakness and prostration, vomiting, constipation, twitching of the muscles and fetor of the breath. The tongue is dry, coated and swollen. If death occurs it is preceded by symptoms of hiccough, delirium and coma.

Diagnosis.—This is based upon the symptoms as outlined and simulating mild cases of cerebro-spinal fever.

Prognosis.—This is favorable, dependent, however, upon the degree of anemia.

Treatment.—This should be symptomatic and similar to that of cerebro-spinal fever.

FOOT AND MOUTH DISEASE.

Definition.—This is a mild infectious disease of animals that is conveyed to man through milk. It is characterized by a slight fever and Aphthous Stomatitis.

Pathology.—Ulcers form upon the mucous membrane of the cheek, tongue, etc.

Symptoms.—These begin with a chill or chilliness, anorexia, fever, and a vesicle upon the mucous surface and later upon the hands and fingers. There may be a gastro-intestinal derangement. The contents of the vesicles may become purulent. The duration of the disease is from five to eight days.

Diagnosis.—This is dependent upon the eruption of the vesicles upon the buccal membrane and hands, and fever and a knowledge of the disease among animals.

Prognosis.—This is favorable in healthy subjects.

Treatment.—Prophylaxis consists in boiling the milk. Mild alkaline washes for the mouth are of service. The sponging of the body with tepid water is beneficial.

GONORRHEA.

Synonyms.—Clap; Trippe.

Definition.—This is an acute, contagious specific inflammation, usually of the urethra or vagina, that is accompanied by a muco-purulent discharge. Cases which run a long course are called chronic and occasionally "Gleet."

Etiology.—The exciting cause is the micro-organism, the gonococcus of Neisser. It is usually conveyed by sexual intercourse with a person suffering from the infection. In very rare instances it may be conveyed by contaminated towels and garments, germ infected objects. The conjunctiva, nasal passages, mouth or rectum are apt to be affected.

Pathology.—This varies and presents different aspects, as it may involve various tissues. It produces an acute inflammation of the mucous surfaces, accompanied first by watery discharge, followed in a few hours by a purulent discharge which is excoriating. Tissues are swollen, thickened, edematous, etc.

Symptoms.—These vary with the location of the infection. In the urethra it begins to manifest itself in from one to twenty-one days, usually about five days after the infection. The inflammation first appears in the anterior urethra. The parts are of a deeper red than is normal and there is a slight watery discharge. When the urine passes over this portion of the urethra it causes smarting and burning. These symptoms increase in intensity as the inflammatory

process extends backward. The discharge becomes profuse, thick, yellow and green, and there may be a tinge of blood. The pain upon urinating becomes intense. Erections are frequent and painful, and owing to the inflammation of the urethral portion, chordee results. If the inflammatory process involves the posterior portion of the urethra, frequent desire to urinate is common. The severity of each symptom varies according to the violence of the infection and habits or resistance of the patient.

Gonorrheal septicemia and pyemia do not vary from similar states due to other microbic infections, apart from the presence in these cases of a genito-urinary affection. Following several weeks of an irregular type of fever the patient may recover, but in other cases the endocardium may become involved and a fatal termination takes place.

Gonorrheal endocarditis is a serious condition. It may be associated with pericarditis and myocarditis. Gonorrheal arthritis is also an occasional symptom or complication occurring more frequently in men than in women. It may be acute or chronic in character.

Complications.—These are numerous, and frequently persist; the more common are phimosis, paraphimosis, orchitis, epididymitis, prostatitis, cowperitis, cystitis, nephritis, conjunctivitis, arthritis, endometritis, metritis, salpingitis, pelvic cellulitis and peritonitis.

Diagnosis.—This is based upon the clinical bacteriological observations of the urethral discharge, its

character and symptoms as already outlined. The mono-articular arthritis, the conjunctivitis, salpingitis; whatever the character of the involvement there is usually a history of an infection. In cases where there is the slightest degree of doubt, a bacteriological examination should be made. In the examination of the discharge, it should be obtained under conditions preventing external contamination of the sample.

Prognosis.—There is probably no disease the far reaching and injurious effects of which are as greatly underrated as are those of gonorrhea. Not alone the havoc it has wrought in women, and the many operations that have been undertaken to remedy its effects, but by becoming latent, its far reaching influence on man has not as yet been thoroughly estimated.

Treatment.—The prophylaxis is of the greatest importance in the control of this disease. The physician should familiarize himself with the bacteriological diagnosis of the disease that the so-called vulvo-vaginal discharge may be properly classified. Patients with gonorrhea should be instructed as to the extreme infectiousness of the disease and the physician should at once inform the patient of the danger of infecting the wife or husband, of the danger to the eyes and of the constitutional affections due to the untimely injections. In the home, due care should be exercised about the toilet, bath and syringes.

Abortive treatment is of service from one to three days after exposure. After the patient urinates the anterior urethra is washed out with sterilized water, and a solution of silver nitrate, 20 grains to the ounce

of distilled water, is applied to the first inch and a half of the urethra. The patient should be treated as for the early stages of acute gonorrhea. An acute urethritis develops and subsides in a few days providing the treatment is thorough.

When the disease has once developed, the diet should be plain and nutritious, milk forming a large percentage of it, rice, cornstarch, sweet fruits and toast. Highly spiced foods, acid, effervescing drinks, coffee should be withheld and tea allowed once a day. All alcoholic beverages and all excesses of tobacco should be controlled.

The patient should avoid as much as is possible all overexertions, violent exercises, sexual excitement. The testicles should be supported. The bowels should not be allowed to become constipated. Water should be taken in abundance, especially an alkaline water as Vichy, etc. A gonorrhea-bag, with a little cotton in the bottom, should be worn. The cotton should be changed as soon as soiled, but care should be used not to obstruct the flow. Frequent sponge baths should be taken.

Injections should not be employed, during the early stages of the disease at least. If the pain is very severe, the penis should be immersed in water as hot as it can be borne.

The irrigation of the anterior part of the urethra with hot water 100° F. to 115° F. often affords relief. If some medication is demanded in the water, a solution of *boric acid* 1–100 may be employed. Irrigating the anterior urethra with *argyral*, 2 to 25 per

cent. solution, is beneficial and is followed by freedom from pain.

If the case assumes a more chronic condition, and does not yield to the ordinary treatment, the habits of the patient should be carefully gone over. Careful examination should be made to ascertain if there are any strictures, granulated or ulcerated patches present.

In some cases an agent for injections is demanded by the patient; the physician should select such a one that will have but little or no injurious effect. *Potassium permanganate* may be used hot, 1–3,000 to 1–12,000. *Hydrogen peroxide* 1–10 or *ichthyol* 5–10 per cent. watery solution is often of service.

Strictures, granulating patches and ulcers should receive proper and special treatment, preceded by gradual use of sounds.

Aconite should be studied during the early stages when the disease causes great restlessness and uneasiness.

Gelsemium.—This remedy should be employed during the acute stage. Early, moderate discharge, smarting and burning at the meatus, little pain, frequent urination. The glands and prepuce are often swollen.

Mercurius corrosivus.—Violent tenesmus, burning and scalding.

Hepar sulphur.—Muco-purulent discharge in those who have had several attacks.

Mercurius iod.—Subacute and chronic cases, with enlarged inguinal glands, indurated patches along the urethra.

Thuja occidentalis.—Painless gleet, thin discharge, prostatic inflammation when there is severe burning during or following urination. There are figwarts and condylomata over the sexual organs.

Medorrhinum.—This remedy should be remembered in those chronic latent cases, and when there are the constitutional effects of gonorrhea.

Tussilago petasites, when there is profuse discharge, with fixed pain in the testicles and eyes.

Sepia.—This remedy is frequently called for in gleet in chronic urethral discharge.

Sulphur should be remembered in all the cases.

Cannabis sativa is to be studied when there is smarting, burning, stinging during urination; constant urging, copious discharge, prepuce swollen and painful, strangury, pains extending into the scrotum, with dragging in the testicles.

Argentum nitrate in subacute and chronic cases, burning on urination, with frequent desire, blood-streaked discharge containing pus, shreds of epithelium, mucous membrane. The pain extends to the testicles.

Cantharis.—When the pain shows extension toward the bladder, urethritis, strangury, burning, cutting, scalding of the urethra. Discharge bloody and yellow; cystitis.

Copaiva.—Constant desire to urinate, painful, bloody urination, profuse, yellow purulent discharge, chordee.

Cubeba.—Gonorrhea, especially in the stage of decline, when there still lingers the "drop." The urine has the odor of violets.

Mercurius.—When the inflammatory process is accompanied by free exudation into submucous tissue and thickening of the urethral walls, producing great diminution in the size of the stream of urine, and chordee. The discharge is greenish, thick and bloody and worse at night.

GONORRHEAL ARTHRITIS.

Synonyms.—Gonorrheal synovitis.

Definition.—This is an arthritis involving one or more of the larger articulations which is due to the gonococcus. It is erroneously termed "gonorrheal rheumatism."

Etiology.—This is dependent upon effects of the gonococcus or its toxins in the joint.

Pathology.—This shows the conditions which are common to synovitis. The capsule, synovial membrane and ligaments are inflamed and thickened. There is usually an effusion into the joint which may become purulent. As the inflammation subsides the joint recovers its motility, but to a less degree than following rheumatism.

Symptoms.—In the acute form the symptoms are mild. In the chronic form they are more severe, but one joint being usually involved. The appearance of the articular symptoms is preceded by a cessation of the urethral discharge and the joint becomes more and more painful. The inflammation is confined to the one joint. The pain, although constant and intense, is not so severe nor is the redness as prominent as that of rheumatism, and is often worse at night, preventing all motion. The fever is moderate, 100° F. to 103°. There is seldom any sweating, but edema is often marked.

Complications.—The serous membranes of the heart may become involved and malignant endocardi-

tis develop. Gonococci have been demonstrated in the endocardium.

Diagnosis.—This is based upon the occurrence of an arthritis following the stopping of a specific urethritis. There is usually but one joint involved and the absence of sweating and other symptoms indicative of rheumatism should lead to a diagnosis.

Prognosis.—Recovery is slow and tedious. There may be a permanent stiffness and ankylosis. Relapses and reinfection are liable to occur.

Treatment.—After the disease has advanced five days it is folly to attempt to check a specific urethritis. When such an attempt has been made at a later period, the result is apt to be an arthritis or some similar condition. The patient should be kept quiet, but the joint should not be immobilized too long at one time, as ankylosis will result.

The application of the ice-bag to the painful part is of service. If there is considerable effusion into the joint, compresses with elevation of the limb will assist absorption. A cloth saturated with a solution of *bichloride of mercury*, three grains to the ounce of water, is wrapped around the joint and this covered with oil silk.

In those cases in which the effusion has become purulent it should be drawn off and the joint thoroughly irrigated with a normal salt solution. With wick drainage introduced after a second douching the wound can usually be closed. Various agents have been employed for the irrigating fluid. *Permanganate of potash*, a weak solution of *bichloride of mercury* and *boric acid* have been employed.

Internally *oil of gaultheria* 20m every three hours, till a slight noise is heard in the head, is of service.

Bryonia alba is frequently of service following the opening of the joint. The urethra is found to be still infected in the majority of these cases and should be treated.

Pulsatilla has been employed in the management of these cases when the totality of the symptoms indicate it.

Sarsaparilla is another remedy that some of the homeopathic schools have found indicated.

Thuja has also been of service. *Medorrhinum* and the *gonococcus vaccine* should be remembered.

SYPHILIS.

Synonyms.—Lues; The Pox.

Definition.—This is a specific, infectious, constitutional disease. It may be congenital or acquired. It is characterized by a peculiar lesion at the point of the entrance of the virus which usually develops into a chancre and induration of the adjacent glands (primary stage). This is followed by a widespread rash and (secondary stage), after an indefinite period, there appears the tertiary stage.

Etiology.—There is little doubt, but that the virus is microbic in origin, the spirochetta pollida, although this has not been proven. While the disease may be transmitted in other ways, the most common is by sexual intercourse. Kissing, drinking from infected cups, washing clothing that bears the virus, the pricking of the physician's finger while operating, has each been a means of conveying the virus.

The hereditary transmission is most frequent through the father, the mother being healthy (sperm inheritance). A mother may bear a syphilitic child and she herself be immune. A mother with acquired syphilis may bear infected children and the father not be infected. In the majority of cases, if both parents are infected the fetal infection is greatly increased.

Pathology.—The chancre consists of a number of round cells infiltrated into the tissues. The blood

vessels in the locality undergo thickening by connective tissue formation, which in time leads to the development of an ulcer.

The secondary manifestations are variable; the most common is an eruption over the skin and mucous membrane, and a lymphatic enlargement. The tertiary lesions are the gummata, which consist of a central caseous area surrounded by a number of small round cells. These are most common in the liver, kidneys, spleen, cord, brain, periosteum and bones, in fact, any tissue in the body. The arteries also show an arterio-sclerosis.

The most common lesions of congenital syphilis are the sclerotic changes in the liver, lungs, pancreas, spleen, bones and other organs, followed by marked evidences of malnutrition. The upper incisors are notched on their cutting surface and the skin shows various manifestations.

Symptoms.—The period of incubation of acquired syphilis varies from ten days to three months; the average time is about three weeks. The first symptom is a red papule which enlarges; necrosis occurs and an ulcer results. The surrounding tissue becomes indurated and presents a firm cartilaginous consistence that accounts for the hard chancre (Hunterian chancre). The ulcer varies in size, and may be so small that it is overlooked; this is especially true if it developed within the urethra. The ulcer is saucer shaped, sloping edges, red, slight aqueous discharges, little odor and rarely painful. The lymphatic glands that are supplied by the lymphatics draining

the area of the primary lesions, are usually enlarged but seldom suppurate and general adenitis develops later. There is no fever during this stage, nor is the health much impaired.

The secondary stage appears in from six weeks to three months following the chancre. There is a fever which may be severe or mild and remittent or intermittent in character. A cutaneous lesion now appears which is macular syphilid or syphilitic roseola in character. It is a reddish-brown or coppery colored pigmented area. It may take the form of a papular, pustular or of a squamous syphilid. Mucous patches and condylomata appear. They develop upon the mucous membrane of the mouth, nose, eyes, vagina, rectum, the perineum, the groin, the angle of the mouth, the axilla and between the toes. They are flat, have the appearance of warts, and their surface is covered with a greyish secretion. Syphilitic ulcers develop upon the tongue, pharynx and tonsils. The patient becomes anemic, the hair falls out, either in spots or there is thinning, especially over the temporal regions. The nails show syphilitic lesions, the eyes and ears show symptoms and the lymphatics in general are enlarged. It is difficult to say just when the manifestations of the tertiary stage appear, but may be anywhere from one to three years. They appear as gummatous growths in the various viscera, skin eruption and occasionally amyloid degeneration or lesions of brain and cord. Another and a distressing symptom, is bone pains, which are felt especially at night, accompanied possibly by a slight rise of the temperature.

In the congenital form the child when born is feeble and the skin eruption may be present, especially upon the wrist, ankles, hands and feet. The mouth is fissured and the lips are ulcerated. The liver and spleen are both u duly enlarged, while the bone symptoms are prominent, especially complete separation of the epiphysis. In some cases the child may appear thoroughly well for two or three months, following birth, when a nasal catarrh appears and develops into the typical snuffles. The nasal discharge is often sero-purulent or bloody. Necrosis of the nasal bone with the resulting deformity follows; subcutaneous hemorrhages are liable to occur. The Hutchinson type of teeth is present. The child's nutrition is not good and it becomes cachectic. Gummata may develop at any point.

Diagnosis.—This is usually easy, and especially if the development is of recent date and the patient is at all honest. In cases of doubt examination should be made for primary sores, the bones should be examined for nodes and the skin and throat should be carefully inspected, or the specific test made.

Prognosis.—This is favorable so far as life is concerned, if the case comes under observation early and follows the physician's directions, but it may be said that as now treated syphilitics do not live as long on the average as others not infected.

Treatment.—The discussion of the prophylactic management of this disease is older than the pentateuch. Theoretically its management is easy, but practically it is almost impossible.

More definite instructions by the parent to the child and by the physician to both the child and parent, should be encouraged, till this instruction becomes universal. The encouragement of an active and definite employment, athletics and a combination of mental and physical training are most beneficial in assisting the patient in overcoming his desires. The syphilitic patient, except in the tertiary stage, is a menace to his environment, he should be instructed as to the care of himself that he does not infect others. The physician should guard himself in every way possible. The question of the marriage of syphilitics should receive careful consideration. Sufficient time should elapse from the date of the last manifestation that infection of the other party will not take place, and that syphilitic children may not be born; at least two years should elapse since the last exhibitions of the disease. The lymphatic system should indicate a normal condition; while the physician should give true and honest advice, he should under no circumstances betray confidence.

The child with congenital syphilis should, if possible, be nursed by the mother, as many of these children do not do well upon artificial food, and there is always the danger of them infecting a wet nurse. If a wet nurse is taken she should always be informed of the possibility of a syphilitic infection.

Following suspicious sexual intercourse, all abrasions of the parts should be thoroughly cauterized with *carbolic acid* crystals, or the actual cautery, and if following this a scab forms and drops off, leaving a healthy cicatrix, it may be considered that the treat-

ment has been successful. If the ulcer has already developed, infiltration has taken place around the glans which shows enlargement. As is usually the case, there is but little use of excising the ulcer or of cauterization. The sore should be thoroughly sterilized by means of *peroxide of hydrogen* and a spray with twenty to thirty pounds of pressure. This should be blown directly into the parts; this is of service in females as well as males, unless the disease is inaccessible, when a douche should be employed. When the ulcer has been thoroughly cleansed, it should be protected by means of a soothing cerate as *calendula*, *boric acid* or a powder of equal parts of *calomel* and *subnitrate of bismuth*, or *bismuth formic iodide*. Should the ulcer assume a phagedenic character, all pressure should be removed and the parts placed in such a position as will favor the circulation, and an antiseptic application applied and the proper remedy administered. The syphilitic patient should so far as is possible avoid both physical and mental excesses, over-exertions should be avoided, especially that of the nervous system, as this is observed in those suffering from syphilis of the nervous system.

Alcohol and all fermented liquors should be avoided, the use of tobacco should be limited, all methods that tend to depletion of the system should be avoided and a diet that favors an increase in weight and one that is healthy and nutritious should be used. A change of scenery and climate is frequently beneficial. Hydrotherapy is of service. The mouth and teeth should be carefully cared for by a bland and mild antiseptic preparation, and mildly astringent if mucous patches

are present. The syphilitic patient desires to get well at once; this is impossible, so he should be kept busy doing something for his own personal welfare, and impressed with the importance of long-continued treatment. The diet should be nutritious and generous. The skin should be kept in a normal condition. The clothing should be such as will maintain a normal temperature.

The internal remedies that have been advised are many, and no doubt many of them have benefited some patients, but the number that have been of service is limited.

Mercurius protoiodatus and *biniodatus* have each been of service in the hands of many reliable clinicians during the secondary stage, especially when there are pustular complications with sore throat, alopecia, headache. The dose of the remedy and the symptoms of the case should be carefully studied.

Mercurius corrosivus should be studied when there are destructive serpiginous ulcerations with ragged edges which eat in and destroy the tissue rapidly. Iritis, sore mouth and throat with swollen and elongated uvula and severe constriction about the throat when attempting to swallow.

In some cases the mercury should be administered by inunction, in other cases hypodermatically. In many of these cases, baths and general eliminative measures are required to complete the treatment that the patient may not be injured by retention of the drug.

Potassium iodide or *sodium iodide* is frequently of service in spite of the complaints heard against it.

It is during the tertiary lesions that it is of most service. Violent headache with periosteal thickening and gummatous infiltration of the nerves and the various internal organs, sore throat and ulceration of the mucous surfaces and necrosis of the nasal bones. There are gnawing, throbbing, burning, boring pains, which are aggravated at night.

Arsenicum album should be studied when there is debility, restlessness, anguish and excessive sensitiveness and syphilitic cachexia with corrosive discharges and a tendency to gangrenous destruction, fetid, exhausting, bloody diarrhea with constant urging.

Cinnabaris should be remembered when there is ulceration of the mucous membrane, pressure at the root of the nose, the tonsils are enlarged, red and congested. There are mucous patches of the mucous membranes.

Kali bichromicum should be studied when there are ulcers of the fauces and mouth which result in perforation of the septum and there are dry crusts and stringy mucus.

Phytolacca decandra should be studied in those cases in which the periosteal and fibrous tissue is involved as in secondary and tertiary syphilis. There are severe pains in the bones, especially of the lower extremities, which are worse at night and during damp weather. In some cases the glands, especially the parotid and submaxillary glands, are involved. The periosteum at any part may be thickened and tender to the touch.

Aurum muriaticum with cachexia is of service when the patient complains of mental depression with

great despair and prostration, and in the tertiary stage when there is caries of the nasal bones and ulceration of the mouth, soreness in the nose, with swelling and loss of smell, putrid discharge from the nose, ulcers on the tongue, alopecia, pains in the bones, which are worse at night; syphilitic orchitis.

Thuja is of service when the moist excrescences, syphilitic condylomata are about the prepuce and glans with whitish discharge.

Nitric acid should be studied when there are mucous patches and phagedenic ulcers of the tibia. Secondary syphilides, especially of the face, with bright red areola or covered with crusts, fetor and odor of the breath, irregular ulcers when there are splinter-like pains in various parts. Ulceration of the rectum with constipation. Thickening and swelling of the periosteum. There are yellowish brown or copper-colored spots over various parts.

Asafœtida should be studied when the case is one of tertiary syphilitic lesions of the long bones, gummatous deposits; ulcers are present and are very sensitive to the touch, and from them there is a discharge of a thin, fetid, ichorous character.

Mercurius solubilis should be studied in the congenital syphilis, erythematous, papular and squamous syphilides on the palms; the spots are red and scale off, all the pains are worse at night.

Stillingia should be studied when the pains are in the long bones; worse at night, ostitis, periostitis, gummatous deposits, and syphilitic ulcers of the mouth and throat, with discharge from the nostrils that excoriates the nose and upper lip.

TUBERCULOSIS.

Definition.—This is an infectious disease caused by the presence and development within the body of the tubercle bacillus. It is characterized anatomically by the formation of tubercles, and is attended by a remittent type of fever, night sweats, gradual emaciation and anemia.

Etiology.—The essential factor is the tubercle bacillus. The predisposing causes are many. The female appears to be more susceptible than the male. Occupations that confine people within doors and exposure to dampness are also predisposing causes. Houses in which tubercular subjects have lived are sources of infection. There is a hereditary predisposition which shows in a defective physical development and in a deficient germicidal resistance so far as the tubercle bacillus is concerned. The modes of infection may be by inoculation, inhalation, or by means of the gastro-intestinal tract.

Pathology.—The tubercle is the basis of the pathology. It varies in size from that of a millet to that of a mustard seed. These are known as miliary tubercles. They may be distributed uniformly or be in clusters, are multiple and show a tendency to cluster into masses. They are of a grayish color, usually firm and when caseation takes place the center contains more or less yellow cheesy material.

Structure and Evolution of the Tubercle.—When the tubercle bacillus is received into any tissue

or organ, its first effect is to stimulate or irritate the fixed connective-tissue elements and cause a proliferation of round cells, which resemble in their abundance of protoplasm the epithelial cells, and are therefore known as epithelioid cells. These have usually a single nucleus, of rather clear vesicular appearance. They may be produced in greater or less abundance, as the first reactive change of the tissue to the irritation of tubercle bacilli. Next there follows an infiltration with leukocytes from the surrounding blood-vessels, and the focus of irritation thus becomes surrounded with numerous small round cells mostly mononuclear. Some of the cells are polynuclear. This leukocytic infiltration represents the reaction of the vascular system to the tuberculous irritation or infection. The number of small round cells varies greatly in different instances. Sometimes, as in certain tubercles of lymphatic glands, they may be relatively few, while the epithelioid cells are present in abundance. In other cases the leukocytes are so quickly attracted and in such numbers that the tubercle seems composed of these cells alone, no epithelioid cells appearing in view. These tubercles are known as the lymphoid. In the later stages the round cells may disappear by degeneration, exposing the previously hidden epithelioid cells to view.

At the stage of the tubercle when it is composed mainly of epithelioid and lymphoid cells it appears to the naked eye as a grayish, somewhat translucent pearly body. It is avascular, no tendency toward formation of new blood-vessels being apparent. In the

further evolution of the lesion degenerative changes take place. These are hyaline degeneration, coagulation-necrosis, fatty change, and eventually a transformation into the cheesy material, the so-called caseous necrosis. These changes result from the specific action of the living tubercle bacillus, though in part also from the avascular condition of the tissue. Avascularity alone, however, is not the cause of caseous necrosis. One of the first changes noted is the granular change in the cell-protoplasm which lessens the affinity of the cell-protoplasm and of the nucleus for ordinary stains. There may be seen among the cells of the tubercle here and there individuals which show this beginning necrosis. These are usually grouped in the centre of the tubercle, though at times also at different points. The outlines of these cells become less distinct until with advanced necrosis the cell is broken down into particles or debris. In the early stages of necrosis the epithelioid cells tend to run together, forming large irregular giant-cells with many nuclei arranged either around the periphery or frequently at either pole of the cell. Some observers believe that giant-cells result from rapid multiplication of nuclei within the epithelioid cells. The giant-cells fall an early victim to the advancing necrosis, and the protoplasm becomes granular and opaque, and eventually breaks down completely. Finally, a tubercle undergoes almost complete necrosis, and is transformed into a cheesy mass, the surrounding connective tissue perhaps still showing proliferative changes which may eventually cause excapsulation

of the tubercle. Calcification may ensue in the cheesy mass and thus lead to permanent destruction of the nodule.

If the tubercular lesion involves the walls of the lymphatics, particularly the larger lymph-channels, like the cervical or thoracic ducts, bacilli may gain access to the lymph stream and thus be transported to the venous circulation, and then through the heart to the lungs or perhaps to other organs. When the tuberculous lesion invades the wall of a vein, the dissemination of the bacilli is even more rapid and widespread, as the organisms find their way to the heart by a more direct route. In rare instances an artery is invaded and the organisms are scattered through the terminal distribution of this.

Symptoms.—While it is impossible to describe all the symptoms as they arise portraying the action of the infection on all of the different organs and tissues of the body, there are certain symptoms that are present in all cases, as a gradual loss of flesh, quickened heart action, an afternoon elevation of the temperature. To ascertain this correctly, the temperature should be taken in the rectum. From one to one and a half degrees should be allowed as the normal range.

The patient is frequently blonde, light or sandy haired, precocious mentally, with but little endurance, narrow chest and stooping shoulders. These sweat easily and are tired on the least exertion. They contract colds easily during the winter and have bowel trouble during the summer. The nose is closed

and there are adenoids, post nasal hypertrophies, enlarged tonsils, which inflame on the least provocation. The breath is usually offensive, the tongue is coated. The enamel of the teeth is deficient and the cervical and submaxillary glands enlarge from the slightest provocation. The hands and feet are usually cold and frequently moist and the appetite is capricious.

It should be remembered that any tissue of the body may be affected and there are certain general symptoms that are characteristic, the temperature, pulse-rate, loss of weight, and the patient should receive a general and most thorough examination in all these cases.

Diagnosis.—It makes no difference at what point infection has taken place or what organ is involved in the process, the discovery of the tubercle bacillus in the inflammatory area in the serum, blood, bone, pus, or secretion from any gland or mucous membrane invaded by the disease, establishes the diagnosis of the condition.

The discovery of the source of the infection is always an aid in the diagnosis. This may be associated with the affected residence in which tubercular subjects have been housed. It may occur through food supply, as from the milk of infected cows, the eating of meat of tuberculous animals. There are cases in which it has been inherited, but more frequently there is inherited a physical development, a feeble germicidal resistance that renders the subject more easily affected. While tuberculosis may develop at any age, lymphatic, arthritic, and

meningeal tuberculosis are most common during the first decade of life. The most positive evidence of tuberculosis is to be obtained from the tuberculin test and should be resorted to in those cases in which there is a failure of health, loss of weight, anemia, moderate afternoon fever, without any positive physical evidence that would lead to this condition.

The conditions from which tuberculosis should be distinguished are numerous. Malaria is frequently diagnosed when tubercular infection is the trouble. There are frequently chills and fever, the spleen and liver are enlarged, the blood shows the hematozoa of Laveran. In many of these cases the blood should be examined very carefully, while if there is any discharge from a sinus, bone etc., that should be carefully examined for the tubercle bacillus, and if there is still doubt, the tuberculosis test should be resorted to.

Typhoid fever may be mistaken, but the gradual onset, the presence of the bacillus of Eberth, the enlarged spleen, the appearance of the eruption about the seventh day, the duration of from twenty-one to twenty-eight days and the tenderness along the line of the colon is to be considered.

Influenza, especially if it assumes the chronic form, may simulate an acute catarrhal tuberculosis. The catarrhal symptoms are a prominent feature, the bacillus of Eberth can usually be determined.

Pneumonia, both types, are mistaken for tuberculosis. The case develops very similarly to a case of true pneumonia, but after the usual period either a

crisis or lysis develops and the fever assumes more of a hectic type. Soon it becomes evident that there is more than a usual pneumonia and an examination of the sputum now shows the tubercle bacillus.

Pertussis may be the beginning and set into operation a case of latent tuberculosis, and careful attention should be paid to cases of prolonged whooping cough.

Relapsing fever, dengue, the bronchitis that follows attacks of measles and rubella should be studied carefully in certain cases, that tuberculosis may not develop.

Prognosis.—This varies to a great extent with the peculiarities of the patient, some showing but little resistance to the disease, while in other cases the resistance is such that the disease is held in abeyance. The location of the disease is important; if located in the kidney or meninges it is more serious than if located in more superficial organs. In many cases it is dependent upon the stage at which it is recognized and systematic treatment instituted.

Treatment.—Tuberculosis has been considered quite thoroughly by the author in dealing with the diseases of the various organs, and especially in the diseases of the lungs, and here consists more in the overcoming of a constitutional predisposition in the cases of those who show a hereditary stain. The advisability of marriage, when either of the contracting parties is tubercular, should be well considered and in the event of marriage and subsequent pregnancy every precaution should be taken to keep the

mother, if she is the infected one, up to a high degree of health during the pregnancy and following delivery, that the child may be prevented, if possible, from an infection.

The question of physical development, fresh, pure air, good, nutritious food and all adjuvants that are employed to protect the child should be pushed. While developing, the child should be watched continuously, and enlarged, diseased tonsils and adenoids that interfere with normal respiration, should be carefully removed. Decayed teeth should be cared for, that an avenue of infection may not be permitted to exist. During the school age, the child should have the benefit of a well ventilated room. If the studies appear to be too heavy, the child should not be driven along with the class, but should take as much work as it can carry comfortably. The various eliminating organs should be watched that they functionate normally.

As the individual advances in years, care should be exercised that his habits, occupation and modes of life are such that a high standard of vitality is maintained.

In case of a subject becoming infected, diet, fresh air, and all other means should at once be adopted to overcome the condition.

Children should not be "hot house reared," and the early stages of catarrhal conditions should be cared for. Coryza coughs that result in adenoids, enlarged tonsils, glandular hypertrophia and pulmonary weakness should receive early attention. The teeth should

be regularly cleaned, nasal and tonsilar obstructions should be corrected. They should not associate with tubercular persons, and kissing and the use of eating utensils and musical instruments that tubercular subjects have used, should be avoided.

Diet.—This should be guarded, and only those articles thrust upon the stomach for digestion that are of value. Milk in moderation, and with other food, is beneficial; but it is often overestimated, as it is low in iron, and the possibility of being a source of infection should be borne in mind. Butter, cream, eggs, fats, meats and vegetables should be allowed. The meal should be taken slowly and thoroughly masticated.

The clothing should be warm and comfortable, but no bundling should be allowed. Children require relatively less clothing than adults The feet should be bathed daily with cold water and soap. Bathing should be regular and frequent enough to insure cleanliness, a hot bath at night and a cool one in the morning, the latter if the child is robust, but not otherwise.

The functions of the body should be carefully regulated. The bowels should have attention, and thus avoid constipation, anal fissures and hemorrhoids. A regularity of habit should be encouraged. The child should not be allowed to spend too much time in the toilet, singing, playing, etc., but the duty should receive prompt attention. Straining at urination should not be allowed, as it results in incomplete emptying of the bladder.

People subject to such an infection should be in-

structed to carry the head erect, the shoulders back and breathe deeply. Shoulder braces should not be encouraged. Youths of the tubercular type should have positive exercise that will develop the chest from the tenth to the seventeenth year of age.

The sanitorium is of great benefit in the management of these cases, as better ventilation, better air, more sunlight, and greater cleanliness are obtained. The diet can be controlled, and one of the most service administered. Fats in assimilable form, and all other agents that add to the resistance of the individual patient, obtained. The education obtained by the patient how to care for himself is of great value.

In a discussion of the following remedies, the author has selected remedies from their adaptability to the needs of the system and their ability to increase the germicidal resistance of the body that it may more rapidly throw off the invading host. For the general therapeutics of tuberculosis the reader is referred to the author's book on "Diseases of the Lungs," page 290.

Tuberculin.—This remedy is indicated in cases of those who have a tendency to tuberculosis. By the term "tendency" I mean an inherited predisposition characterized by a deficiency in the germicidal and defensive properties of the tissue, and an inherited weakness of the respiratory organs, lymphatic and vascular systems which favor the localization of the germ. The typical patient is tall and slender, with a flat, narrow chest. He is weak, physically, but bright, mentally, and usually a blonde. There is a clinical history of temporary improvement, with re-

peated relapses, even under the well selected remedy. The character of the symptoms is ever changing, one organ after another appears to be the seat of the disease. The patient's resistance is below normal, and as a result he is subject to recurrent attacks of catarrh and catarrhal fever without being able to explain why. This condition may be confined to the bronchi and results in lobular pneumonia and capillary bronchitis; in other cases, if it is a woman, a profuse leucorrhea may be present.

The mental symptoms of the patient are typical. He is snappy, fretful, depressed, melancholic, whines and complains. He is hopeless, and has an aversion to mental work. There is restlessness which is aggravated during the evening, and continues till midnight. There may be a constant desire to move and change about, to go somewhere. The sleep is frequently restless, with talking and screaming, showing more or less irritation of the nervous system.

Headache is a prominent symptom. It is often intense, and may become so severe that the patient is rendered unconscious, screams, pulls the hair, and beats the head against the wall. At times there are sharp cutting pains through the head, while again there may be a sensation as of a band about it.

If the morning and evening rectal temperatures are carefully taken, it will be found that the diurnal variation is greater than is normal. At times the elevation of the temperature may be continuous for twelve to twenty hours. This may be attended with vomiting, an increased pulse rate and a quickening of the respirations.

It produces pronounced pain in the renal region with blood and albumin in the urine which contains an excess of urates and an abundant viscid mucous discharge.

Along the respiratory tract there is a sensation of dryness of the throat, with inflammation of pharyngeal mucous membrane, and laryngeal catarrh with ulceration and edema of the glottis, with a desire to cough, which is often without expectoration. Again, it is attended with a loose, easy expectoration. There is a sensation of heat in the chest, while physical examination of the chest reveals bronchitis and pulmonary edema, and post-mortem examination shows catarrhal pneumonia with soft hepatization and a tendency to the formation of abscess. The blood shows a diminution of the oxyhemoglobin, and in advanced cases a leucocytosis. The most positive change is a lowering of the opsonic index for tuberculosis.

The skin shows erythematous eruptions resembling that of measles, with subcutaneous indurated nodules. The breath is fetid, the tongue is coated brown, is dry, while the uvula is inflamed. The gums are inflamed, blue and ulcerated. There is viscid material in the mouth, which is distasteful to the patient. There is nausea, vomiting and diarrhea, with pain in the stomach. Both the spleen and the liver are congested. There are severe pains in the lumbar region which are aggravated from pressure. There are also tenderness and swelling about the knees and hip joints. The lymph glands are swollen, while all the serous surfaces are congested.

As a diagnostic measure tuberculin has been em-

ployed by many. Those who have employed it most extensively to this end are the most encouraged with the results obtained. The injection should not be given unless it is known that the temperature has been normal during the preceding days. Nor should it be given at night, lest a slight reaction occurring during sleep be overlooked, and a severe reaction follow a second and larger dose. If the dose of one milligram be injected hypodermically into a healthy subject, it gives rise to slight pains in the extremities and a transient sense of fatigue. If the same amount is injected into a tuberculous subject there results a more pronounced reaction, both locally and generally. From four to five hours following the injection there is a chill, which is followed by a rise of the temperature and a quickening of the pulse rate, more severe pains in the extremities and a more pronounced sense of fatigue. There is also loss of appetite with nausea and drowsiness. These symptoms last from fifteen to twenty hours; when they have subsided the patient usually feels better than before. In cases of advanced tuberculosis the injection may be followed by a rise of the temperature to 106 degrees F. When the temperature rises suddenly, collapse and death have been known to result. The reaction is greater in pulmonary cases than when the lesion is confined to the osseous tissue. In these cases the cough increases and a sense of dyspnea and distress is complained of. In cases of lupus the effects of the injections are pronounced.

A subject is said to react to the tuberculin test if within twelve hours following the injection he de-

velops a rise of temperature from 1½ to 2 degrees F. above the previous temperature. The initial dose is usually from ½ to 1 milligram, and this is followed in from three to seven days with doses of 2 to 4–10 milligrams.

In the ophthalin tuberculin test 1 tablet is dissolved in 1 c.c. or 15 drops of sterile distilled water, which makes a one per cent solution. Of this solution one drop is instilled into one eye, then the other eye serves as a normal control by which to judge the changes. The reaction in a tubercular subject consists of a redness of the caruncle, which spreads to the conjunctiva, by lachrymation, by a fibrinous exudate on the caruncle, by chemosis and by some discomfort. The reaction begins in from three to ten hours after, and disappears in from twenty-four to thirty-six hours later. In some cases the reaction is later in appearing.

Calcarea carbonica.—This is a remedy of great service in increasing the germicidal resistance of the tissue and assisting in controlling of the increased excretion of earthy phosphates. It assists in overcoming the scrofulous diathesis and corrects the assimilation of the digested foods and their changes in tissue. The child has dry flabby skin and open fontanelles with an excess of perspiration about the head. He shows a tendency to obesity, rachitis and tuberculosis and suffers from dentition.

Calcarea phosphorica when there is a deficient bone formation. The child is dark complexioned, thin, spare, anemic with dark hair and eyes.

BERI-BERI.

Synonyms.—Kakki; Endemic Neuritis.

Definition.—This is a contagious disease, due to an undiscovered micro-organism from decayed fish or vegetables; it is characterized by a polyneuritis of the peripheral nerves.

Etiology.—There is insufficient nitrogen in the diet of those subject to this disease who are compelled to live on rice and salted fish. It has been advanced by certain investigators that cock-roaches or weevils might carry the specific organism from feces of the patient to food destined for others.

Symptoms.—It is a disease of middle and advanced age, and is more frequent among women than men. The yellow and black races show a predisposition to it. It occurs most frequently during the winter months.

The patient complains of a sense of muscular heaviness and tiredness, with great irritability of the heart. There is edema which appears first about the feet, but it gradually extends. The urine is scanty and shows albumin. An increase in the amount of the quantity of the urine is considered favorable. It may appear as wet or edematous, dry when the parts are dry and there is prickling of the parts and a mixed variety composed of both of the above varieties.

Complications are malaria, diarrhea and dysentery. Relapses are common.

Diagnosis.—This is based upon the symptoms as

outlined. It should be distinguished from scorbutus, lathyrism, pellagra, chronic ergotism.

Prognosis.—Dyspnea the result of neuritis of the pneumogastric nerve should be looked upon as serious. A paralysis of the diaphragm dependent upon an involvement of the phrenic nerves is also serious. A sensation of internal fire is looked upon by those familiar with the disease as a forerunner of approaching death. A reappearance of the patellar reflexes in acute beri-beri is considered a favorable indication.

Treatment.—The diet must be corrected and made a European diet. The patient should be sent to the uplands, and if on ship should be kept upon deck.

Emigrants from certain ports where rice and salted fish are the articles of diet allowed should receive other articles; especially fat pork, onions, tamarinds, peppers, and watercress are beneficial as articles of diet.

Methylene blue has been proved of great benefit in many of these cases.

Digitalis and *strophanthus* have been of service when the heart shows failure.

LEPROSY.

Synonym.—Elephantiasis Græcorum.

Definition.—This is a chronic infectious disease characterized by cutaneous pigmentary changes and by the formation of neoplasm (tubercular leprosy) of the mucous membrane, skin and nerve which gives rise to alteration of sensation (anesthetic leprosy), to ulceration and to progressive deformity.

Etiology.—To-day it is principally confined to the tropics, although it may be found in all climates. Improper hygiene and poverty are among the predisposing causes. The exciting cause is the bacillus lepræ. Its most common way of infection is by inhalation.

Pathology.—The nodules that occur in the skin and mucous membrane in the tubercular form are composed of small cells held together by a framework of connective tissue. Between these cells are the lepro bacilli. These nodules after a time may heal and cicatrize. In these ulcerative processes fingers and toes may be lost. In the anesthetic variety there is a growth of the bacilli withering the substance of the nerve fibres, which results in a peripheral neuritis.

Symptoms.—The period of incubation may be several years. During this time there may be a transient febrile condition which is frequently termed malaria. While two types of leprosy are recognized, yet in the course of the disease one variety generally passes over into the other.

The first positive evidence of the nodular or tubercular variety is the appearance of irregular, shiny, erythematous patches of a reddish or copper tint which are slightly raised above the surrounding skin. Their edges are well defined. The spots may persist or disappear, leaving a white anesthetic area. If they persist they may ultimately ulcerate. The ulceration may lead to the destruction of many different organs, as the ears, eyes, larynx, etc. Obstruction of the respiratory organs may occur, and inhalation pneumonia is not uncommon.

In the anesthetic variety there is at first pain in the limbs and hyperesthesia. The infiltrated nerves may be palpable under the skin. Early in the history of the case they are tender, while later there is anesthesia and numbness. Trophic changes are common, and cutaneous anesthesia may appear. Vesicles form which break down, forming ulcers, and with the trophic disturbances may result in a loss of fingers and toes. The duration of the disease may be years, but the gradually appearing exhaustion ultimately undermines the system.

Diagnosis.—In advanced cases this is not difficult. Early the areas of sensory disturbances and the erythema, and the presence of the bacilli in sections of the skin, or in a tubercle, render the diagnosis positive. In countries, and in localities where the disease is known to exist, new growths should be carefully examined, especially if they are attended with an altered sensation.

Prognosis.—This is unfavorable; recovery is not

the rule. The disease is chronic and the victim may survive twenty to thirty years. The ulcerative variety causes death in much less time.

Treatment.—Absolute isolation has been practiced in the control of this disease. Where the disease is not epidemic proper instruction to the patient appears to be sufficient. Intelligent attendance upon lepers seldom leads to infection. Close contact with infected subjects for any length of time should be avoided, and those obliged to come in contact should be certain that there are no open wounds. If a wound should occur during an operation, it should be thoroughly cauterized. Those exposed and predisposed should live in the best hygienic condition. Cleanliness of the body should be insisted upon, and overcrowding in quarters should be avoided. It has been claimed that a fish diet is favorable to the development of leprosy, but this is doubtful. While leprosy is considered an incurable disease, it should be remembered that much relief can be afforded and life prolonged.

The patient should be kept where there is an abundance of fresh air. A mild climate, one in which the patient can spend much time out of doors is beneficial. The hygienic surrounding should be as near perfect as possible. The diet should be one that is simple but highly nutritious. Frequent baths should be taken. Alcohol and excesses of all forms should be avoided.

In the anesthetic form the splitting, stretching or excision of the nerves has been of service in relieving the pain. The excision of the nodules has been of

service when they caused distress. The treatment of skin lesions calls for cleanliness and a dressing containing an antiseptic agent. Electricity has been of service in allaying the nervous form of the disease.

Arsenicum album has been employed internally and applied locally to the ulcers.

Hydrastis Canadensis has also been employed internally and locally.

Hoang-nan has been extensively employed with uniformly good results.

Jatropha gossipifolia is employed in Columbia as a remedy for the treatment of leprosy.

Tuatua is a Venezuelan plant that has been employed extensively. Chaulmugra oil has been employed externally and locally in the tubercular and mixed types.

Strychnia has been used in the trophoneurotic cases.

Hydrocotyle Asiatica has been used by certain physicians, as have *phosphorus*, *plumbum* and *secale cornutum*.

FRAMBŒSIA.

Synonym.—Yaws.

Definition.—This is a chronic contagious disease, characterized by the development of granular tissue in the skin.

Etiology.—It is believed to be of bacterial origin, although the micro-organism has not been isolated. It is transmitted by direct inoculation and by food. It prevails in the tropics, among the dark race and affects children more than adults.

Symptoms.—After a period of incubation of from two to six weeks' duration, during which pain in the muscles, joints, headache, malaise are complained of, there appears the primary sore, which at first consists of a small papule which breaks down and becomes a shallow ulcer which soon heals, leaving some induration. Within a varying period a secondary rash appears, which is most numerous at the muco-cutaneous junctions. The rash consists of small papules which gradually develop to size of a pea; they enlarge from tubercles under the skin, the top of which breaks down and a yellow discharge escapes and then forms a dry crust under which the tissue is papillomatous and resembles a raspberry in appearance. From this raw surface there is an exudation of a yellow viscid pus. This condition may persist for months and successive crops may take place. In untreated cases the nodules may break down and periostitis and bone caries result.

Diagnosis.—This is based upon the symptoms as outlined. It should however be distinguished from syphilis, which is characterized by greater gland enlargement and secondary exhibitions of syphilis of the mucous membranes and vascular thickening.

Prognosis.—Apart from being neglected, this is favorable.

Treatment.—Cases should be isolated. The home where it has developed, should be thoroughly fumigated. Abrasions of the skin should be early and carefully treated by modern methods. Cleanliness is all important. The disease requires to be treated symptomatically, which in many cases means much the same as syphilis, which means the study of the *mercuries* and *potassium iodide*. If anemia is an important symptom, *arsenicum* and *ferrum* should be studied.

VERRUCA.

Synonym.—Peruvian Warts.

Definition.—This is a chronic infectious disease in which there is a prodromal febrile stage attended with rheumatic pains and the development of granulomatous wart-like excrescences upon the skin, mucous membrane and viscera.

Etiology.—The specific cause has not been determined. It is inoculable but not contagious. It may appear in epidemics. It attacks both sexes and those of all ages, and is frequently observed in those suffering with "Orya Fever," a pernicious type of malaria. The disease is confined to Peru.

Symptoms.—Following a period of incubation lasting from two to six weeks, the patient complains of a sensation of tiredness in the legs and a general malaise. After a few days there appears an afternoon rise of the temperature, which gradually becomes more pronounced and may be of an intermittent type. There is pain in the joints, extremities and the spine; the pain is worse at night and attacks one articulation after another. There are repeated chills and muscular contraction, especially of the sternomastoid and the muscles of the calf of the leg.

The patient loses flesh, becomes anemic, and there is enlargement of the liver and spleen. In about three weeks the eruption appears, when there is amelioration of the other symptoms. The eruption begins as small pinkish spots which soon become papu-

lar and vary in size from that of a pea to that of an orange. Upon the internal viscera they may cause difficulty in swallowing or from bleeding. The growths may persist for months, when they dry and disappear, or ulcerate and suppurate.

Prognosis.—In Peru, 10 per cent. of the natives and 70 per cent. of whites die.

Treatment.—The removal of the patient to a lower level, near the sea, is beneficial. The treatment is symptomatic. The remedies that are of service in the ordinary warts, as *thuja*, *baryta carb.*, *arsenicum*, *hydrocotyle*, have been little used here.

MEASLES.

Synonyms.—Rubeola; Morbilli.

Definition.—This is an acute, infectious, contagious disease that is attended with catarrhal symptoms of the respiratory tract and a characteristic eruption.

Etiology.—It is a disease especially of childhood, occurring during the winter months in temperate and cold climates; the specific exciting cause has not been determined. The period of incubation is about ten days. One attack usually confers immunity, but a second, third and even fourth attack has been recorded.

Pathology.—The inflammatory area of the skin shows infiltration of leukocytes, especially in the blood-vessels, the sebaceous and sweat glands. The catarrhal condition may extend to the smaller bronchials and broncho-pneumonia result.

Symptoms.—The onset is usually indicated by a slight chill, which is followed by a fever which may reach 103° F. or higher, and the appearance of catarrhal symptoms, as indicated by the coryza, photophobia, lachrymation, injected conjunctiva and cough. Rales may be heard in the chest. Bluish points surrounded by a white area may be observed upon the buccal mucous membrane. This is known as Koplik's sign.

On the second day the temperature falls, and may be subnormal for two days. About the fourth day the eruption appears, and there is a rise of the tem-

perature, when it may reach 103° F. or 104° F. The eruption appears first upon the face and neck within twelve to thirty-six hours and spreads over the whole body. It consists of a rose red or brownish maculo-papular eruption which rises above the skin. There is intervening healthy skin often arranged in crescentic shape. It remains at its height for about four days. During this period the catarrhal symptoms continue. There may be exacerbations at about the eighth day from the beginning of the disease, the eruption fades and a fine desquamation occurs. About this period (seventh or eighth day) the temperature falls to normal, and if there are no complications, it remains at normal. A high temperature after the eruption has faded indicates complications.

During the course of the disease the tongue is coated and diarrhea may be present. About the twelfth day in typical cases the catarrhal symptoms have subsided.

Complications.—Broncho-pneumonia is a serious complication, while pleurisy, endo- and peri-carditis are rare; nephritis is infrequent. Hemorrhagic or "black measles" occur.

Diagnosis.—This is based on the sudden onset, the catarrhal symptoms, the appearance of the typical rash upon the fourth day, the typical fever and the prevalence of an epidemic.

Rubella should be differentiated by the absence of the catarrhal symptoms, and that the eruption appears on the first day.

Prognosis.—This is favorable in childhood, but more serious, and the complications are more numer-

ous, in adults, especially in those living in unsanitary surroundings, or who are poorly nourished; those suffering from previous chronic disease are apt to develop complications, as broncho-pneumonia and pneumonia, and seldom recover.

Treatment.—Prophylaxis consists in the immediate isolation of the case. The practice of parents who encourage their children to expose themselves that they may contract the disease, as it is less liable to prove serious in childhood, should not be countenanced.

Measles is a self-limited disease, and the patient should be nursed carefully through it, and no attempt should be made to shorten the course of the disease.

All discharges and clothing should be disinfected, and the quarantine continued for from four to five weeks.

At the onset the patient should be placed in bed in a well ventilated room. On account of the condition of the eyes, the room should be darkened. The patient should be protected from draughts. The bed covering should be sufficient to keep the patient comfortable.

Children under two years of age and those with local or inherited tendencies to tuberculosis, and rachitic children, should be especially protected from the infection. The temperature of the room should be from 65° F. to 70° F. The bed clothing, as well as that of the child, should be changed often to maintain cleanliness. A lukewarm bath should be given every day or every second day, or the patient should be sponged under the bed clothing with equal

parts of warm water and alcohol. The mouth and nose should be kept thoroughly clean with a mild solution of *boric acid.*

The diet during the period of fever should be such as is employed during febrile periods. If the patient is an infant, and bottle fed, the diet should be liquid, including milk, soups, broths, and these may be peptonized. The food should be given at intervals of two, three or four hours. The bowels should be kept open. The conjunctivitis may be controlled by the application of cloths moistened in cold water, or a mild solution of *boric acid.* If the eyelids stick together, vaseline may be applied along their edges. If there is itching and burning of the skin, it may be rubbed with a mild carbolized vaseline. If there is a retrocession of the eruption the child should be put in a hot pack. The lungs should be examined daily for pneumonia, and on its first appearance treated accordingly.

Gelsemium.—This remedy is frequently indicated when the physician first sees the case. The patient is drowsy, stupid, and there is a croupy cough. The fever is about 103° F., the pulse tension is rather soft, and there is coryza with an excoriating discharge with hoarseness.

Aconite should be thought of when the case is seen early, the skin is hot, the eyes are injected, there is photophobia, and restlessness is present.

Belladonna should be remembered when there is a cerebral congestion with throbbing of the carotids, dilated pupils, etc.

Veratrum viride should be remembered when the

eruption delays its appearance and convulsions are threatened. There is congestion of the lungs and great arterial excitement.

Bryonia alba is another remedy that should be remembered when the eruption is delayed and has been suddenly suppressed. There is labored breathing with oppression of the chest, with a dry cough and stitching pains.

Tartar emetic should also be studied when there is a retrocession of the eruption with cyanosis and sopor, rales are heard all over the lungs, and bronchopneumonia is present.

Camphor should be studied when there is sudden collapse with a cold surface and livid appearance and great prostration.

Euphrasia should be studied when the eyes and nose are affected. There is profuse lachrymation, the discharge is hot and burning, but bland.

Pulsatilla should be studied in those cases where the catarrhal symptoms are prominent. There is profuse lachrymation and fluent coryza, with a loose cough and diarrhea. The discharges are bland and yellow.

Arsenicum should be remembered in malignant cases when there is great weakness with hard skin, and a small quick pulse. There is great anxiety, restlessness and prostration.

Baptisia and *rhus toxicodendron* should be studied in cases that assume a low septic type.

Mercurius iodatus flavus and *baryta iodata* should be studied in those cases in which the glands are involved and enlarged.

RUBELLA.

Synonyms.—French Measles; German Measles, Rötheln; Epidemic Roseola.

Definition.—This is an acute infectious, contagious disease that occurs in epidemics and is characterized by enlargement of the superficial lymphatic glands of the neck, a slight fever and mild catarrhal symptoms.

Etiology.—It usually occurs before the fifth year. The exciting cause is not known. It is readily transmitted from the sick to the well, one attack confers immunity. The period of incubation is from one to three weeks.

Symptoms.—The onset is sudden, the eruption which is frequently the first symptom noticed occurs irregularly over the face, neck, chest, body and limbs. It varies in individual cases and may resemble erythema, urticaria and occasionally scarlet fever, or measles. It may last from two to four days, when desquamation occurs in fine scales. The fever may be wholly absent, again it is irregular. There may be a slight sore throat complained of. The superficial cervical and post cervical lymphatic glands are enlarged but seldom suppurate. The tongue is furred, the appetite is lost and the urine presents many of the characteristics of febrile urine.

Complications.—These are rare. Bronchitis and pneumonia occur in scrofulous subjects.

Diagnosis.—This is based upon the clinical symptoms as outlined.

Prognosis.—This is favorable, but a very small percentage of cases is fatal.

Treatment.—The child should be kept in bed till the diagnosis is made, and while the temperature is elevated a liquid diet should be given. The bowels should be kept open and the body should be bathed daily and oftener if the fever is high. Catarrhal symptoms should receive attention and the enlarged glands should be considered in the selection of a remedy, but no irritating plasters or poultices should be allowed. The complications should receive such treatment as their importance demands.

In many cases no remedy is required, in others *aconite*, *belladonna* or *gelsemium* may be required. When the glands are enlarged, *baryta carb.* or *baryta iodide* may be studied; in the catarrhal symptoms, *hydrastis* or *mercurius* may be indicated.

SCARLET FEVER.

Synonym.—Scarlatina.

Definition.—This is an acute contagious disease characterized by a diffuse scarlet eruption, sore throat and high fever.

Etiology.—While it may occur during any period of life, it is most common among those under ten years of age. Epidemics are most frequent during the winter months and in temperate or cold climates. It is usually epidemic, but it may be sporadic.

While the exciting cause has not been isolated, it is undoubtedly a specific, infectious micro-organism, probably Klebs's micrococci. The streptococcus pyogenes is usually present in the inflammatory exudate. The vitality of infection is of great duration and in one case appeared to be over twenty years. The toxins leave the body by the urine, scales and pus. It is contagious during the whole period of the disease, but especially during desquamation. As a rule, one attack confers immunity.

Pathology.—There are rarely distinctive morbid changes, unless of the hemorrhagic type; there are no post-mortem evidences of the eruption. The tonsils present the evidence of a follicular ulcerative and peritonsillar inflammation; lymphoid enlargement and even abscess formation may develop about the neck. The kidneys show the evidence of acute degeneration; endocarditis and pericarditis may be present.

Symptoms.—The period of incubation is from one to seven days, at the end of which there is a chill followed by high fever, headache, and vomiting. In young children the disease may be ushered in by a convulsion. A sore throat is soon complained of, the tonsils and whole pharyngeal wall show an intense hyperemic condition. The fever is high from the beginning (103° F. to 105° F.) and may mount up a little when the eruption appears, which is usually at the close of the first day or the beginning of the second. In complicated cases it remains high for about five days, when it falls by lysis.

The eruption consists of small pin-head points of a deep red color, which appear first upon the neck and chest, from which it spreads rapidly over the body, except certain parts of the face, mouth and chin. These red points coalesce and give a diffuse pinkish or reddish appearance, while over the whole skin a slight edema may be noted. Raised papules may be observed. Itching is often intense. The duration of the eruption is from four to five days.

Sore throat is an important symptom throughout the course of the disease. In severe cases a diphtheritic exudate is likely to occur. In certain cases "scarlatina anginosa," characterized by severe pharyngeal symptoms, develops. The throat is markedly swollen. The inflammation may extend to the larynx, trachea, bronchi, the Eustachian tube and middle ear. The tongue at first is covered with a white fur, which soon peels off, leaving raised papillæ, which give it the appearance of a berry.

In many cases headache, delirium and coma, in children convulsions, are prominent symptoms. The pulse rate is increased and in mild cases being 120 to 140 and higher in severe cases. Hemic murmur may be heard at the base of the heart; the spleen is usually slightly enlarged; the urine scanty, high colored, of a high specific gravity and in toxic cases contains albumin.

In from two to four days after the appearance of the eruption the fever and sore throat decline and the eruption begins to fade, beginning from the parts at which it first appeared. Desquamation follows and lasts from four days to one month. During this period, polyarthritis and inflammation of the tendons may appear, but unless pus forms and the case assumes a septic type the condition is of short duration.

Complications. - During this period, post-scarlatinal nephritis may occur. This condition is ushered in by a rise in the temperature, pale and edematous face and edema of the feet, while the urine is scanty or suppressed and may contain blood. The chemical and microscopical examination show all the evidences of acute nephritis.

Otitis media is very common and keratitis and iritis are occasionally met with. Diarrhea is a frequent symptom during the early stages of the disease, while there may be hemorrhages.

Apart from the anginal form of the disease already referred to, in malignant scarlatina, cases may be characterized by toxemia of such severity that death

may result before even a diagnosis is made. Hemorrhagic scarlatina may result, in which case there is extravasation of blood beneath the skin and mucous membrane, as well as epistaxis, hematemesis, intestinal hemorrhages and hematuria. This form is usually fatal. Diphtheria, pneumonia, arthritis and adenitis are common. Chorea, hemiplegia, cerebral thrombosis and progressive paralysis are the most frequent referable to the nervous system.

Diagnosis.—The presence of an epidemic, the sudden onset, the chill or convulsion, vomiting, high fever, headache, sore throat, rapid heart action, the appearance of the rash at the close of the first day or beginning of the second, and the appearance of the tongue, are all characteristic.

SCARLET FEVER.	MEASLES.
1. The onset is with vomiting or convulsions.	1. The onset simulates a catarrhal fever.
2. There is severe sore throat and glandular infiltration. Diarrhea is a prominent symptom early, while later constipation is the rule.	2. Little or no sore throat, catarrhal symptoms, conjunctivitis, photophobia, bronchitis, broncho-pneumonia.
3. The eruption appears at the end of the first day or the beginning of the second. It is finely punctate, giving an appearance of a diffused redness. No healthy skin between.	3. Eruption appears on the fourth day, is papular, arranged crescentically with area of healthy skin intervening.
4. There is great rapidity of the pulse and elevation of the temperature.	4. The pulse is not so rapid, pulse and temperature in normal proportion.

5. Lymphatic glands about the neck enlarged in proportion to the throat involvement.
6. The fever is high, continues so for several days, when it gradually declines.
7. Albuminuria is frequent.
8. Convalescence is often prolonged, owing to complications and desquamation, is copious and in large shreds.

5. They are not enlarged as early, and are limited to the angle of the jaw.
6. There is a preliminary elevation of the temperature, which falls on the second or third day, to rise again with the appearance of the eruption, continues till the eruption begins to fade, when it subsides rapidly.
7. Albuminuria is rare.
8. Convalescence may be prolonged, desquamation is seldom copious, and is in fine scales.

SCARLET FEVER.	RUBELLA.
1. The general symptoms are the high temperature, rapid pulse, vomiting, nervous symptoms and the strawberry tongue.	1. There is little or no depression, temperature but little above normal, little change in the pulse.
2. The rash is diffused and appears by the end of first day, there is great itching of the skin.	2. Rose spots irregular in outline appear on first day.
3. Throat symptoms prominent, diarrhea early.	3. Slight sore throat, conjunctivitis, bronchitis, slight or no diarrhea.
4. Lymphatic glands of the neck prominent in proportion to the throat involvement.	4. Generally enlarged and tender, the posterior chain being especially enlarged.
5. Convalescence often prolonged, desquamation in large shreds.	5. Convalescence is rapid, and desquamation is always in fine shreds and may be copious.

SCARLET FEVER.	DIPHTHERIA.
1. The symptoms may be similar till the appearance of the rash.	1. There may be a rash in septic cases.
2. The throat symptoms are but a part of the general symptoms.	2. The symptoms centralize themselves about the throat.
3. The exudate in the throat is thin and yellowish.	3. The exudate is white, thick and tough.

Prognosis.—This is modified by the type of the epidemic, the death rates varying from 25 to 5 per cent. It is more fatal in young children than in those who are older. The prognosis should always be given with a degree of caution, as even in mild cases a septic type and later complications may arise. Other types of infection as diphtheria and septic disease may develop. The prognosis is not favorable in local septic conditions, as extensive cervical swelling, faucial ulceration and discharges from the nose. A continuous high temperature and circulatory failure are unfavorable signs. Coma and suppression of the urine are unfavorable. Chronic nephritis and otitis are remote effects. No patient should be termed well until six weeks have elapsed.

Treatment.—Prophylaxis is of great importance in the control of this disease. Strict isolation during the course of the disease and a thorough disinfection of the room occupied by the patient are of great importance. Careful inspection of schools is also of service in the controlling of the disease. The physician himself should exercise every precaution, that he himself may not become a disseminator of the disease.

The room selected for the care of the patient should be one as far as possible from the activities of the family. It should be one that is easily and well ventilated, and unnecessary furnishings should be at once removed. The temperature of the room should be maintained at about 70° F. All excreta should be thoroughly disinfected. All cloths, bed linen and everything that has been brought in contact with the patient should not be put in with the regular laundry, but should be either destroyed by fire or should be disinfected.

The mouth, nose and throat should be thoroughly cleansed. A solution of *boric acid* or one of *potassium permanganate* 1–500 can be used for the purpose.

The diet should be liquid, chiefly milk, which has a most favorable action upon the kidneys and prevents nephritis. Baths should be employed to assist elimination and reduce the temperature. Antipyretics should not be employed. The temperature of the baths should not be too low, especially if the skin is cold and the heart weak and diseased. If the nose is not free, a mild solution of *bicarbonate of soda* or one of the mild alkaline solutions may be employed. If the throat is very painful, the swallowing of small pieces of ice, or the application of cold to the throat externally, will relieve. Should the superficial glands show fluctuation, they should be incised, then thoroughly drained. Should otitis develop, it should not be allowed to go on too long before a paracentesis is performed.

Acidum carbolicum.—This remedy should be re-

membered in septic cases in which the kidneys are not functionating normally. The pulse is rapid, the patient restless and partially delirious. The lips, gums and tongue show ulceration, while the mouth is black. There are foul ulcerated patches on the inside of the lips, gums and cheeks. The breath is foul and carrion like. There is a white circle about the mouth, but the rest of the face is dusky red. The abdomen is tympanitic, the urine high colored and the stools diarrheic.

Belladonna.—This remedy is indicated in cases characterized by a smooth red form of eruption in which there is great vascular and nervous excitement. There is cerebral congestion, with more or less mental disturbance. The child is sleepy, desires to sleep but is unable to, and should she sleep there is a start that wakens her. The pupils are dilated, the conjunctiva bright and glistening, while the carotids are pulsating. This remedy has been employed during the prevalence of scarlet fever as a prophylactic.

Aconite.—This remedy should be studied in the commencement, before the eruption makes its appearance. There is dry, hot skin, full frequent pulse, great restlessness, violent thirst and hurried breathing. We also have great fear and anxiety of mind, with nervous excitability and pain in the stomach, with nausea and vomiting.

Ailanthus.—There is a glandular swelling of the throat, small, rapid pulse, severe headache, with hot red face. Patient is very drowsy and restless, with

muttering delirium. The skin is covered with a miliary rash, with efflorescence between the points of a dark, livid color. The livid color, when pressed out with the finger, returns very slowly, and there is violent vomiting with inability to sit up.

Arum triphyllum.—Corners of the mouth and lips are sore and cracked, tongue red with elevated papillæ, putrid sore throat, submaxillary glands swollen, nose stopped, or discharging a burning, ichorous fluid, excoriating nostrils and upper lip, eruption all over the body, with much itching and restlessness.

Lachesis.—This is indicated in scarlatina maligna, with external swelling of neck and glands, diphtheritic inflammation of throat with great difficulty in swallowing, external throat very painful to touch, ulcers on tongue and aggravation after sleeping.

Cantharis should be studied in cases of acute nephritis when the urine is scanty and high colored and contains albumin and perhaps blood. There is a constant desire to urinate both before and after urination. There is pain in the loins and abdomen.

Mercurius.—There are ulcers in the mouth, throat and tonsils covered with ash-colored sloughs. Deglutition is very difficult, attended with stinging pain. Fluid escapes through the mouth and nose when attempting to swallow. Patient has very fetid breath, profuse secretion of saliva, often offensive and acrid discharge from the nose.

Muriatic acid.—Of use in malignant cases with tonsils and throat swollen, inflamed and covered with dark-colored ulcers and great tendency for sloughs to

extend and run together. Patient has dark redness of the face, purplish color of skin and discharge of thin, acrid pus from the nose excoriating the parts. He slides down in bed.

Rhus toxicodendron.—The rash is dark colored and itches violently. There is a drowsy state with delirium and red smooth tongue, with triangular red tip; also much fever and restlessness, particularly after midnight. He has pain in limbs and joints, ichorous or yellow, thick discharge from nose and is constantly changing position.

Cuprum aceticum.—Used when metastasis to brain is apprehended, or eruption suddenly disappears, followed by convulsions, vomiting, rolling of eyes, distortions of face and all the flexor muscles and great restlessness and tossing about with stupor and delirium.

Baryta carb.—Parotid and submaxillary glands are swollen with much saliva or dryness of throat; tonsils are swollen and of a pale red color with a pressing, stinging pain on swallowing and breath putrid. Scrofulous children that grow but little.

Apis mellifica—The fever is of a typhoid type. Tongue is of a deep red color and covered with blisters; nose discharges a thick, white fetid or bloody mucus and abdomen is sore to touch. There are dropsical symptoms during desquamation and the child lies in a stupor.

Arsenicum album.—The eruption delays or grows suddenly pale, with rapid prostration and putrid sore throat. There is great anguish, extreme restlessness

and fear of death; intense thirst, drinking little but often with wheezing respiration and fetid diarrhea.

Nitric acid.—We find sore throat extending up into the nose, profuse discharge of thin, purulent matter from nostrils, putrid smelling breath with mouth full of fetid ulcers, swelling of the parotid and submaxillary glands and ulceration of the corners of the mouth and lips, especially after the abuse of mercury.

Sulphur.—There is bright redness of whole body with violent itching tingling of skin, with burning after scratching. Child jumps, starts, and screams fearfully. Indicated where other well chosen remedies have failed to have the desired effect.

Zincum.—There is threatening paralysis of brain; the child lies in a state of unconsciousness with jerking of the whole body, or twitching of single limbs. There is grating of the teeth and shrill, frightful screams during sleep with small frequent pulse, fixed, stupid expression of the eyes and icy coldness of the skin from sunken vitality.

Bryonia alba.—The eruption does not come out fully, or suddenly disappears. We find congestion of chest with difficult, anxious breathing, a sensation of weight upon the chest with troublesome cough, splitting headache, worse by motion, and lips parched, dry and cracked. Patient wants to lie perfectly still.

Calcarea carbonica.—This remedy is to be thought of in protracted cases, where the glands of the neck are swollen and hard; the throat is greatly inflamed, with aphthæ on tonsils and roof of mouth. The

patient does not convalesce after regular recession of eruption and the face is pale and bloated, showing no signs of rash. The child is scrofulous with large head and open fontanelles, or there is otorrhea or parotitis following scarlatina.

Baptisia.—There is the typhoid character; fauces are dark red and tonsils swollen and covered with dark red putrid ulcers. Eruption resembles measles with great fetor of breath, cracked, sore and ulcerated tongue, slight delirium and burning heat of face with sordes on teeth and lips.

Ammonium carbonicum. — Indicated with hard swelling of parotid and lymphatic glands of neck, where rash continues out longer than the usual period and there is tendency to gangrenous ulceration.

Carbo vegetabilis.—This is usually thought of in the last stages with putrid sore throat, sloughing of fauces, rattling in throat, great prostration of strength, coldness of extremities and craving for cold air.

Lycopodium.—Of use when there is inflammation of the throat of a brownish red color, stitches on swallowing, ulceration of the tonsils, beginning on right and spreading to left, obstruction of nose and rattling in throat and hawking up bloody mucus. There is dryness of mouth and tongue without thirst and red sediment like sand in urine.

CHICKEN-POX.

Symptoms.—Varicella.

Definition.—This is an infectious disease of childhood, characterized by a vesicular eruption and mild constitutional disturbances.

Etiology.—The infective agent is not known. It is transmitted directly from the infected to the well by contact or by close proximity. It usually occurs in epidemics and while neither infants nor adults are exempt, it is rare after the tenth year of age. The period of incubation is from ten to twenty days.

Pathology.—The vesicles are less loculated than those of small-pox and are more superficial in their formation. They pass rapidly through the stages of superficial vesiculation, partial pustulation, desiccation and incrustation, occasionally a pock pustulate and a small scar is left.

Symptoms.—In some cases there are mild prodromata of malaise, slight fever and irritability. In other cases the invasion is indicated by a chill, which is followed by a rise of the temperature, 101° F. to 103° F., headache, vomiting and general pains. Occasionally the appearance of the eruption is the first symptom. It appears within twenty-four hours of the appearance of the first symptoms. It appears first upon the upper part of the body, the face and scalp. At first it is in the form of small reddish points which quickly become rounded, rose colored macules, papules and vesicles within a few hours.

Later the vesicles contain a turbid fluid. They rarely become umbilicated, occasionally they do. In about 48 hours from their first appearance, the points become pustules. The rash lasts from two to five days, when the pustules begin to dry, a brownish crust resulting which is soon cast off usually leaving no scar. In rare cases a scar is left, which is seldom permanent. Successive crops of the eruption may appear and it may be seen in all stages at the same time. The rash may be observed upon the mucous surface of the mouth, pharynx and larynx. As the rash fades the temperature falls by lysis and the symptoms, if there have been any, also subside at the same time. In weakly children the disease may be more severe. A hemorrhagic form of the disease with extravasation of blood into the eruption, hemorrhage from the mucous membrane and gangrene of the skin about the pocks has been seen.

The complications are nephritis, erysipelas and adenitis.

Diagnosis.—This is usually easy. The absence of constitutional symptoms, the occurrence of all stages of the eruption at the same time, the absence of the surrounding areola and of the umbilication of the vesicles are characteristic. There is no shotty feeling under the skin as in small-pox. If the pustules are pricked they collapse entirely, which is not true of small-pox.

CHICKEN-POX.	IMPETIGO CONTAGIOSUM.
1. Eruption usually begins on back.	1. Eruption begins on hands and arms.
2. But few lesions appear on face.	2. Often limited to face.
3. Vesicles small and oblong.	3. Vesicles large and round.
4. Vesicles numerous.	4. Eruption not extensive.
5. Moderate scabbing.	5. Well marked scabbing.
6. Crusts superficial and brownish.	6. Crusts adherent and yellow.
7. Lesions discrete and not grouped.	7. Lesions clustered and often coalescing from patches.

CHICKEN-POX.	VESICULAR ECZEMA.
1. History of contagion.	1. Not communicable.
2. Seldom seen extensively on face.	2. Very apt to appear on face.
3. Lesions discrete.	3. Lesions tend to group and become confluent.
4. Vesicles do not rupture.	4. Vesicles rupture.
5. Vesicles oblong.	5. Vesicles round.
6. Moderate scabbing.	6. Extensive crusting.
7. Eruption extends over body.	7. Eruption usually limited in extent.
8. Skin not infiltrated or much inflamed.	8. Skin infiltrated, red and weeping.
9. Eruption lasts a few days.	9. Lasts longer with tendency to recur.

CHICKEN-POX.	SMALL-POX.
1. Eruption begins on body.	1. Eruption begins on forehead.
2. Usually no premonitory symptoms.	2. Eruption begins on third day of disease.
3. Begins as vesicles.	3. Begins as macules or papules.
4. Lesions do not pustulate.	4. Passes regularly through several stages to the pustular.
5. Appear in crops.	5. But one crop of eruption.

6. Little or no redness about vesicles.	6. Lesions surrounded by a red area.
7. Vesicles rarely umbilicated.	7. Vesicles become umbilicated.
8. But few lesions appear on face.	8. Eruption appears largely upon face.
9. Superficial scabbing usually without pits.	9. Deep scabbing with pitting.
10. Vesicles oblong.	10. Vesicles round.

Prognosis.—This is usually favorable. In unsanitary conditions the course of the disease may be so modified and the complications such that the recovery of the patient is uncertain. One attack usually, but not always, secures immunity.

Treatment.—In institutions and places where many children congregate, it may be wise to isolate the child. If quarantine is instituted, it should be maintained till the crusts have fallen. When the child has been released the apartments should be disinfected and thoroughly aired.

During the early stages when the fever is present, the child should be kept quiet in bed. A tepid bath night and morning assists in reducing the temperature. The diet should be light and liquid during the febrile stage. The bowels should not be allowed to become constipated; enemata of soapsuds, or olive oil internally, will be found to act nicely. Pure water should be allowed and the mouth kept clean by a mild solution. If itching should become annoying, a mild carbolized vaseline may be applied to the skin. In some cases it will be found necessary to have the hands done up in gauze to prevent scratching and infecting the pocks.

If possible the urine should be examined from time to time to ascertain if nephritis is developing. Should the vesicles appear in such numbers on the face as to cause heat and distress, a soothing application, as equal parts of *hamamelis* and water, or *glycerine* and *rose water*, may be of service. Should there be much inflammation surrounding the eruption, a solution composed of equal parts of *calendula*, *hamamelis* and water may be applied. If there is much itching, an application of *camphor* (*oil camphor* one drachm, *olive oil* four ounces) to the pock with a fine brush is of service. Care should be exercised that the vesicles on the face are not ruptured, as it may result in scars.

Aconite.—This remedy is frequently indicated during the initial fever, when the child is restless and the fever, pulse and other symptoms of the remedy are present.

Rhus toxicodendron is frequently indicated in cases when the vesicles have formed and is often the only remedy indicated.

Mercurius sol. may be required when the fever has subsided.

Tartar emetic should be studied in those cases which simulate small-pox.

SMALL-POX.

Synonym.—Variola.

Definition.—This is an acute epidemic and contagious disease characterized by an initial fever of from three to four days' duration, lumbar pain, vomiting and an eruption which is at first papular, then vesicular and pustular, and then a crust which falls and leaves a permanent cicatrix. As the pustules develop a secondary fever appears, which is frequently attended with grave complications.

Varieties.—Discrete, confluent, malignant, varioloid or modified.

Etiology.—Although not isolated, it is believed to be a micro-organism. The disease is contagious from the initial fever to the final desquamation and is carried on the clothing. It affects persons of all ages and one attack usually protects from a second. Vaccination also protects. The period of incubation is from fourteen to sixteen days.

Pathology.—The pustule has its origin in the rete-mucosum of the skin. It is found in the larynx, trachea, bronchial tubes and on the pleura, in the esophagus and in the rectum. In the hemorrhagic type of the disease, extravasation of the blood may take place in various places while the spleen and liver are hard and dense and may undergo fatty degeneration.

Bronchitis, pneumonia, laryngeal, edema and myocardial degeneration are among the more common complications.

Symptoms.—In the average cases the onset is sudden; there is a severe chill, the temperature rising abruptly from 102° F. to 105° F.; the pulse rate increases from 120 to 130, the face is red and the conjunctiva injected. Accompanying the rise of the temperature, there is severe muscular pain, especially of the back, which is continuous, a severe headache appears early. A convulsion, followed by delirium and coma, often announces the appearance of the symptoms in children. These symptoms, together with vomiting, continue until about the third day, when there is a sudden remission in the temperature, the pulse rate falling and other symptoms abate to such an extent that the patient considers himself well.

On the third day an eruption appears, first upon the forehead and lips. At first it is about the size of a pin head and consists of coarse red spots. They soon become hard and feel like a shot under the skin. On the fifth day the spots become papules. On the sixth day they are transformed into vesicles, which are soon umbilicated. On the eighth day the vesicles change into pustules and by the ninth day the pustules are entirely purulent and each is surrounded by a broad red band, the halo or areola, the face becomes swollen and all the features change. In two or three days pus oozes from the pustules and forms scabs or crusts, which by the end of the third week drop off, which leaves a red glistening base (the pit) which soon changes to a white cicatrix. With the formation of the pustule on the eighth day, rigors fol-

lowed by fever of a septic nature appear and continue as long as the suppurative process lasts. The pulse is now rapid and feeble, the urine is scanty and high colored and often contains albumin. This is the dangerous period in the history of the disease and may be attended with violent delirium. In favorable cases the secondary fever drops after three or four days and convalescence results.

In the discrete form, the pustules are separated by healthy skin and the disease is of a mild type.

In the confluent form the vesicles run together and the pustules form earlier and the symptoms are all aggravated.

Of the hemorrhagic form two varieties are recognized. The purpura variolosa, in which there is no pock. The eruption appears as petechia, the skin becomes dusky and a purplish rash appears all over the extremities. There is a very offensive odor from the body, the mind is clear, blood appears in the urine, the temperature remains low but may rise just before death. This is known as "black small pox."

In the second variety, hemorrhages appear in the pock during its vesicular stage, while hemorrhages occur in other parts of the body. A rash resembling scarlet fever or measles, usually triangular in form and appearing upon the inner side of the thighs, upon the abdomen, the upper part of the chest, and the forearms, may appear upon the first or second day.

Complications.—During the secondary fever, pleurisy, broncho-pneumonia, pneumonia, myocardiac degeneration and inflammation and suppurative process

in various organs may develop. During convalescence abscesses and furunculosis may develop.

Diagnosis.—There is seldom any difficulty if the course of the disease is typical. Before the appearance of the rash it may be impossible to diagnose it correctly, but the presence of an epidemic should be borne in mind. The chill, vomiting, pain in the back and legs, headache, high fever and pulse rate, all declining on the third day, when the eruption appears, macule, papule, vesicle, pustule, crusts, and secondary fever form a group of symptoms which are typical.

Prognosis.—This varies in different epidemics. Vaccination is considered the greatest prevention known. Two initial rashes, the intense general erythema and the profuse dark petechial form, which indicate a hemorrhagic attack, indicate a most unfavorable case. If the hemorrhagic signs appear late the prognosis is less grave. From five to ten per cent. of the discrete cases are fatal, while one-third of the confluent cases are fatal. Young children are apt to develop broncho-pneumonia or succumb to the secondary fever. The prognosis is most favorable in those about fifteen years of age.

Unfavorable symptoms are an ill-marked remission between the primary and secondary fever, the presence of an active delirium, insomnia, and cases of abortions in pregnant women.

Treatment.—The prophylactic treatment consists in vaccination, as introduced by Jenner (or the internal administration of *variolinum*, which is claimed

by some to have a similar action). When cases are recognized, they should be completely isolated and disinfection should be absolute. When it is impossible to care for the patient in a detention hospital, he should be kept in a room preferably on the top floor of the home, from which all rugs, carpets, hangings and all extra furniture have been removed. The ventilation should be thorough, and before the door a sheet should be hung which is constantly saturated with a one to twenty *phenol* solution. The bed linen and all clothing should be immersed for at least two hours in a solution of 1 to 1,000 of *bichloride of mercury*, or a 3 per cent. solution of *phenol*, before they are sent to the laundry. The diet should be sent from the kitchen, but transferred to dishes that are not taken outside the sick room.

Disinfection should be most thorough in this disease as in all eruptive fevers. Everything should be thoroughly disinfected that has been brought in contact with the patient. The physician should be careful that he does not carry the infection.

The diet should be much the same as in other acute febrile diseases, with the exception that in this disease the suppuration causes a decided drain upon the system and should be met early by a highly nutritious diet. During the first febrile stage the diet should consist of milk, broth and albumin water, together with plenty of pure water, carbonated water and lemonade. As the initial fever subsides, the diet should be increased, and the easily digested vegetables, spinach, celery, asparagus, cauliflower, new

beets, and baked potatoes, together with bread, mutton chops, steak, rare roast beef, milk, eggs and bread should be given.

As the secondary fever returns the liquid diet should be again resorted to. It should be made as nutritious as possible and consist of peptonized or plain milk, egg-nog, raw or soft boiled eggs, custard, meat juices, broths. Should there be much dysphagia the food should be given cold in small quantities and at frequent intervals. In some cases it may be necessary to resort to rectal feeding. Those who have been in the habit of taking stimulants, and other cases with marked cardiac weakness, may require alcoholic stimulants. If such is the case, whiskey, brandy and port wine answer best, and should be given well diluted and at regular intervals. It may be diluted with glycerine or simple syrup. It should not be given as a routine practice.

As convalescence takes place the diet should be gradually increased in quantity and quality.

Antimonium tartaricum.—This remedy has a most decided influence over the clinical history of the disease. It is employed by many during the whole course of the disease. It is, however, during the second or pustular stage that it is of the greatest service; when the eruption does not develop properly, and when gastric and pulmonary complications develop.

Gelsemium.—This remedy should be studied in those cases in which the fever is high and the patient shows a marked drowsiness. In those in which the fever is high and arterial excitement is marked, *veratrum viride* should be studied.

Cimicifuga should be remembered when the muscular pains are intense.

Baptisia tinctoria.—This remedy should be studied when prostration, putrefaction of the discharges, loss of appetite and hemorrhages become leading symptoms.

Hepar sulphur.—This remedy should be studied in those cases in which the skin does not clear up readily, and furuncles, suppuration and enlarged glands are present.

Mercurius.—This remedy should be studied in those cases in which there is more or less copious salivation, flabby tongue that takes the imprint of the teeth. The mouth and intestines show the effects of the disease.

Hydrastis Canadensis—This remedy is of service in cases in which there is ulceration of the mouth and mucous surfaces with faintness referred to the epigastric region, together with great weakness.

Ammonium carbonicum.—This remedy should be studied together with *crotalus* and *lachesis* in those cases in which there are hemorrhages and a tendency to destruction of the blood.

Arsenicum album.—This remedy should be studied in those cases in which prostration becomes a marked symptom, and a typhoid condition is present and a general hemorrhagic tendency.

VARIOLOID.

This is small-pox modified by previous attacks, vaccination or inoculation or *variolinum*.

Symptoms.—These are similar to small-pox, except they are much milder. The eruption appears earlier and is not so copious.

Treatment.—Besides vaccination, either externally or by means of *variolinum* as a prophylaxis, there should be complete isolation and disinfection. All fixtures should be removed from the room. Everything coming in contact with the patient should be burned. As the body of the small-pox patient has the power of transmitting the disease, all clothes that have touched the body should be soaked in a powerful disinfecting solution. After death the body should be removed quickly and cremated if possible.

The treatment is similar to that of unmodified small-pox. *Variolinum* has been introduced and is of great service in these cases.

VACCINIA COWPOX.

This is a disease conveyed by the artificial inoculation from animal to man, or from human subject to another, having an eruption resembling small-pox, from which it is protective.

This was first instituted by Dr. Jenner 1798. Vaccine lymph, and that from the heifer animal, bovine lymph, and that from the child known as the humanized lymph. For a history of the discovery and technique and symptoms of vaccination the reader is referred to a treatise upon the subject.

Variolinum is prepared from the contents of the ripened pustule of a small-pox patient and is employed to render individuals immune, as well as to lessen severity of attack if small-pox has once developed. It is one of the newest agents, but investigation has shown it to be of service; and in view of its beneficial effects it should be received and used in all these cases without prejudice.

SIMPLE CONTINUED FEVER.

Synonyms.—Febricula; Ephemeral Fever; Synocha; Ardent Fever of the Tropics.

Definition.—This is a simple continued fever of from two to three days' duration.

Etiology.—There is no specific cause. Extremes of temperature promote it, overeating, mental and bodily fatigue, excitement and emotion are etiological factors.

Symptoms.—It usually begins with a slight chilly sensation followed by a temperature of 100° F. to 103° F. The face is flushed and herpes facialis may appear. The tongue is furred; the urine is scanty and high colored; the bowels are constipated at first, but later there is diarrhea. The patient is dull, drowsy, restless and uneasy. The duration of the fever is from two to three days, when it terminates either by crisis or lysis.

Diagnosis.—This is based upon the absence of inflammatory conditions and the presence of the symptoms just enumerated.

Prognosis.—This is favorable.

Treatment.—The patient should be placed in bed, the bowels evacuated and the body sponged with tepid water. Nothing but liquid food should be allowed for a few days, then a more solid diet may be given. *Aconite*, *gelsemium*, *ferrum phos.* and *rhus tox.* are the remedies required.

THE BLOOD

This is the tissue that distributes food and especially oxygen to all the cells of the body. It receives waste products, as carbonic acid waste, nitrogenous bodies and ammonia water and carries them to other organs, either to be further modified or excreted. It also carries the internal secretions to other organs that it may complete the cycle of its usefulness. While its composition varies, its average normal constituents remain about the same. The microscope shows it to be composed of the plasma, or liquor sanguinis in which are suspended the red and white corpuscles and the platelets.

The specific gravity of the blood is approximately 1055; that of the serum, 1035; that of the corpuscle, 1085.

The blood plasma is a yellow fluid, alkaline in reaction and has a saltish taste. Its composition is 90 3 water, 8.3 proteids, 0.6 extractives, 0.8 inorganic salts.

The red blood corpuscles form 40 per cent. of the total volume of the blood. There are about 5,000,000 per cubic millimeter in a healthy adult man and 4,500,000 for the adult healthy woman.

The white blood corpuscles or the leucocytes are classified according to the general shape of their nuclei, or the structures of their protoplasm and its

contents, into lymphocytes, large mononuclear leucocytes, polymorphonuclear leucocytes, eosinophil cells basophilic.

Blood platelets when uninjured have the shape of a small biconvex lens of about half the diameter of a red blood corpuscle.

ANEMIA.

This is a term used to designate a deficiency of the bulk of the blood or of certain of its constituents.

Oligæmia is a term used to designate a deficiency in the volume of the blood.

Oligocythæmia is a term used to designate a deficiency of the red blood corpuscles.

Oligochromæmia is a term used to designate a deficiency of the hemoglobin of the blood.

Hydræmia is a condition in which there is a deficiency of the solid constituents of the blood when compared with the serum.

Primary anæmia is a disturbance of the blood or of the blood making organs, so that the anæmia is the distinctive feature of the disease and the other symptoms are dependent upon it.

Secondary anæmia is a condition in which some disease is acting upon the blood, or the blood making organs, and the anæmia is but a symptom of this underlying disease.

SECONDARY ANEMIA.

Synonym.—Symptomatic Anæmia.

Etiology.—First in this list belongs hemorrhages, the importance of which varies according as the loss of blood is gradual or rapid, the amount lost, the individual predisposition, some persons being able to lose much more blood than others without experiencing much shock. A continued drain upon the sys-

tem as suppuration, lactation, chronic diarrhea and malaria are also factors. Organic infectious disease, toxic causes, inanition and animal parasites are all important etiological factors.

Pathology.—The state of the blood as a result of any etiological factor depends upon the duration and severity of the cause acting, and the power that the individual possesses of regenerating the blood. The fluid is the first replaced, the corpuscular elements next, and the hemoglobin last, the latter requiring weeks, and in many cases months. The leukocytes are usually increased in secondary anemia. In slight anemia the erythrocytes show but little change, which increases with the severity of the anemia.

Symptoms.—There is usually pallor of the skin, lips and mucous membranes (conjunctiva and lips). The eyeballs have a bluish tint. There is shortness of breath, undue readiness of fatigue and a disinclination to mental or physical effort. Neuralgia, headache, vertigo, and sleeplessness are complained of. Both the appetite and digestion are impaired and constipation is the rule. The urine is pale and of low specific gravity, while the urea is diminished. The heart's action is enfeebled; palpitation is common; the pulse small, compressible and soft. A soft blowing hemic murmur is heard at the base of the heart, and in the vessels of the neck. If the condition is continued, an edema of the dependent parts and hemorrhages in various surfaces occur, while fatty degeneration, especially of the heart and walls of the blood vessels, takes place. The red and white cells are re-

duced in number, and the hemoglobin is diminished. Some of the red cells are distorted and diminished in size.

Diagnosis.—This is based upon the clinical history of the case, and in doubtful cases, an examination of the blood, which shows a diminution of the red cells and of the hemoglobin.

Prognosis.—This is dependent upon the underlying cause and its amenability to treatment.

Treatment.—This is always the management of the underlying cause. If it is a hemorrhage, measures should be instituted to control it. If it is dependent upon an infectious disease, the management of the convalescence is what is required.

Nutritious food and fresh air are necessary, and if there is great exhaustion, the patient should be confined to bed in a well ventilated room. The diet of those patients who have lost much blood should be one that can be easily digested and assimilated, as the digestive function is lowered. The transfusion of blood or of a normal salt solution should be employed, where there has been a rapid loss of blood. If there is an excessive thirst for small quantities of water, cracked ice and rectal injections of water should be given. Milk is a most excellent article of diet to begin with, and in many cases appears to act best when given hot. Milk should be taken by the mouthful and chewed in the mouth, and then swallowed. Many complain it makes them "bilious;" this being usually a mental type of biliousness, it may be given diluted with charged water or tea.

There should be an abundance of albuminous food taken. In the selection of a diet it is advisable to prescribe one that contains an excess of iron, meats (boiled, broiled, roasted or raw), eggs and blood beef juices. It may be necessary to resort to carbohydrates, as asparagus tips, spinach and baked apples. In some cases rectal feeding may be required. These patients should have a warm sponge bath at night, cool or cold baths being forbidden till the anemia is well overcome. If the patient is a woman, she should not be allowed to dress her hair in the morning till she has had a glass of hot milk or bouillon. She should take a rest for an hour after the noon day meal; spend as much time as is possible in the fresh air, at first in a hammock, later in a carriage; and still later she should walk, which is the best of all methods for obtaining fresh air.

If the hemorrhage is severe it may be necessary to elevate the foot of the bed and lower the head, that blood may reach the vital centers of the medulla. In some cases the wrapping of bandages about the extremities, beginning at the toes and fingers and passing up toward the body, will assist in keeping the blood to the head. They may be kept in place from two to four hours. A transfusion of a normal salt solution is of benefit.

If heart failure threatens, subcutaneous injections of ether or camphorated oil, or an enema containing two tablespoonfuls of alcohol to one part of warm water, is of service. Anemic patients should wear woolen or flannel underwear and woolen stockings to prevent taking cold.

For anemia, the result of hemorrhages, the following remedies are valuable:

Hydrastis Canadensis.—This remedy or the *hydrastine hydrochlorate* 3x should be studied in those cases of secondary anemia dependent upon epistaxis where, apart from the local condition, there are evidences of great exhaustion, catarrhal disorders and constipation, also hemoptysis, hematemesis, hematuria, intestinal hemorrhages and the hemorrhages that attend gastric ulcers. It is valuable when the exhaustion above mentioned is present, together with atonic dyspepsia, slow digestion, poor appetite, sour eructations and a sensation of "goneness" in the epigastrium.

Cinchona.—This remedy should be studied in cases of anemia, the result of the loss of blood. The hemorrhage has been controlled, but the effects remain. The patient is greatly debilitated and suffers from throbbing headaches as if the head would burst and there are singing, roaring, hissing noises in the ears. There is restlessness, and he lies awake all night, is greatly depressed in spirits, too despondent to live. The tongue has a thick yellow coating, and there is a bitter taste. There is either canine hunger or complete loss of appetite. The stomach is excessively acid and is distended with gas, but it is not relieved either by eructation or dejection. The menses are profuse and the abdomen is greatly distended with gas so that she cannot endure to have the abdomen touched, she loses much blood and is continually fainting.

Ustilago maydis.—This remedy should be studied

in the cases of secondary anemia that are dependent upon relaxation and a general atonic condition of the female genital organs, and, as a result, menorrhagia and metrorrhagia are present. The hemorrhage is of a passive nature and the blood is dark colored. For many days there will be a slow, persistent oozing of dark blood with small black coagula. The uterus is enlarged, the cervix tumefies, and is somewhat dilated, swollen and flabby. This condition may attend the climacteric when the flowing lasts for weeks. The blood is dark colored, and there are many clots, there are hot flushes, and the patient complains of a gone feeling at the epigastrium. It is the ergot of the chronic uterine hemorrhages.

Secale cornutum.—This remedy or the active principle, ergotin, should be remembered in those cases dependent upon uterine hemorrhages. The patient is a thin, scrawny, melancholic woman who is afflicted with anguish and dread of death. She suffers from a bearing down sensation, which is referred to the uterus, and is subject to passive hemorrhages of an offensive odor. The patient is continually cold and yet desires to be uncovered. She suffers from headache, the pain rising up into the head from the back of the neck to the occiput and then spreads all over the head with agonizing distress. The face and the mucous membranes are pale and the extremities cold and livid.

Ferrum picricum.—This remedy has been employed when the secondary anemia that attends cancer becomes an important question, not that it has

any influence over the cancer, but because it has an influence in staying the destruction of the red blood corpuscles.

Ferrum arsenicosum.—This remedy should also be remembered in secondary anemia attending cancer, together with the last remedy mentioned and the hypophosphites from a group that is of service in many cases.

CHLOROSIS.

Synonyms.—Green Sickness; Chloremia; Morbus Virginens.

Definition.—This is a type of anemia in which there is a relative diminution of the hemoglobin.

Etiology.—This is observed in females between fifteen and twenty years of age. While it is observed among all classes, it is most common among those who are ill nourished and have not the opportunities for outdoor exercise and fresh air, as mill, factory and store girls.

Pathology.—This is not definitely understood, appearing as it does at a period when the ovaries, uterus and breasts are developing. It would appear there is some relation between their development and this disease. The hemoglobin is reduced, the color index is low, and the red blood corpuscles are smaller than is normal.

Symptoms.—The symptoms develop slowly, and skin becomes pale and has a faint greenish-yellow tint. The patient complains of debility and of shortness of breath. The mucous membrane of the lips and the tongue is pale, while the body is plump and appears to be well nourished. The conjunctiva is of a bluish tint. The slightest muscular exertion produces dyspnea, giddiness and faintness, while edema about the ankles is common. Amenorrhea is common, while in other cases the menses are regular, but scant and in some the flow is normal. Dysmen-

orrhea is common. The appetite is perverted and there is a craving for sour articles of food, sweets, chalk and slate pencils. The heart may show signs of dilatation, the apex is displaced outward, palpitation is common, especially after exertion. Hemic murmurs are common over the venous trunk at the root of the neck. The arterial tension is usually normal, and a soft systolic murmur may be heard over the subclavian artery or the pulmonary area. Gastric pain is frequent after meals and in some cases vomiting occurs. Hyperacidity of the gastric juices is common and the development of gastric ulcer is met with; constipation is common. The teeth are often carious.

Complications.—Venous thrombosis occurs, especially of the legs, which may give rise to a fever. Optic neuritis is rare.

Diagnosis.—This is based upon the age and appearance of the patient, the vascular derangement and the examination of the blood.

CHLOROSIS.	PERNICIOUS ANEMIA.
1. The patient is from fifteen to twenty years of age.	1. The patient is usually older.
2. The hemoglobin is reduced.	2. The blood changes to a more serous condition, great diminution of red cells, high color index.

Prognosis.—This is favorable; the patient may be restored to health in a few weeks, but relapses are common.

Treatment.—The patient should be put to bed and given rest, physical, mental and social. This is fre-

quently all that is required to restore the health. The room for the patient should be large, well ventilated and if possible one that is flooded with sunshine, and mild massage of the abdomen and extremities administered. If the patient is not confined to bed, she should at least rest for an hour after each meal. Many of these cases improve rapidly, if removed from their home to a retreat or sanitarium. In many cases the stomach contents should be examined and the acidity of the stomach carefully noted and a diet administered accordingly.

The diet should be one that is highly nutritious, easily digested. Milk and those articles that are rich in iron should be selected. In many cases, five or six small meals a day are to be preferred to three large ones. If gastric atony is present, water should be taken in small quantities. Milk and cream mixed is of great value. Fresh fruit, vegetables, especially green vegetables, are of value. Small seeded berries should be avoided, as they cause gastric irritation.

Alcohol should be avoided if possible. If the patient shows much weakness, the breakfast should be taken in bed. A small portion of meat, toast or Zwieback, with a small amount of tea or coffee, should be allowed, or two eggs prepared to suit the patient, with toast, butter and a glass of milk. Before the midday meal, the patient should have a rest for half an hour. If the appetite is very poor, soups should be avoided at the beginning of the meal and used at the close. If there is much pain in the stomach, a hot application should be applied.

During the afternoon, cooked or raw fruit with bread, toast, tea, cocoa, milk or cream may be allowed. At the evening meal, the food should be mild and unirritating and a gruel of oat meal, tapioca, rice with toast, butter-milk or eggs, toast and stewed fruits may be allowed. If the case is well advanced to recovery, meat, eggs or fish may be allowed. Constipation should be relieved by a proper diet, olive oil, etc. If gastroptosis is present it should receive treatment.

Ferrum redactum.—This remedy is frequently indicated when the face is pale, yellow, but easily flushed, the lips are without color. There is emaciation and puffiness, edema about the ankles and dyspnea upon the slightest motion with palpitation of the heart, with hemic murmurs. She has an aversion to meats and cooked foods, and a desire for acid foods. There is vomiting of food, especially at night. The bowels are constipated, the menses are suppressed, there is sadness, apathy, and muscular weakness. In connection with this *iodide of iron* and *arsenate of iron* should be studied.

Pulsatilla.—This remedy should be studied when the case has received large amounts of *arsenic* and *quinine*, and there is a history of delayed and scanty menses, and the patient is pale, exhausted and worn out.

Calcarea phosphorica.—This remedy should be remembered when there is a history of defective nutrition and the patient complains of excessive flatulence, craves ham, bacon, salted or smoked meats. The

complexion is waxy, greenish and white. The menses are too early.

Ferri et strychninæ citras.—This remedy should be studied in cases of severe chlorosis when the patient complains of great debility, dyspepsia and amenorrhea. This remedy should be administered in the 2x or 3x trituration.

Ferrum valerianicum.—This remedy should be remembered in cases of chlorosis in which the patient is hysterical and suffers from chorea and nervous disorders.

Helonias dioica—This remedy develops a condition of chlorosis as a result of its hematolytic action, and should be studied in these cases, as well as *calcarea carb.*, *arsenicum album* and *sepia.*

ANEMIA INFANTUM.

Synonym.—Pseudo-Leukæmia.

Definition.—This is a disease of childhood which possesses some points of similarity to leukæmia; the leucocytosis, while present, is not so marked; there are no lymphomatous tumors, and the child usually recovers.

Etiology.—It is rare. It is observed between the first and seventh years of life. The causative factor has not been determined, but it is supposed to be associated with rickets, syphilis and disturbances of the digestive organs.

Pathology.—There is enlargement of the spleen, and the liver may show some enlargement.

Symptoms.—The onset is gradual; there is increased pallor; the spleen is palpable and digestive disturbance is usual. The blood shows a disturbance which soon returns to normal. The red cells may be down to 2,000,000 or less, while the white cells are increased to 100,000, but more frequently they are 20,000 to 50,000.

Diagnosis.—This may be made upon the presence of syphilis or rickets with digestive disturbances, enlarged spleen, the presence of anemia with leucocytosis and the absence of myelocytes from the blood, hemorrhages and lymphomatous tumors.

Prognosis.—This should be guarded, for while recovery from this affection is the rule, recovery from intercurrent affections is not so certain.

Treatment.—This disease requires much the same line of treatment as leukæmia and anemia. The Roentgen rays, however, should be employed with great caution in children. See therapeutics of anemia, chlorosis, etc.

If syphilis or rickets is present, it should be treated as outlined elsewhere.

PERNICIOUS ANEMIA.

Synonyms.—Mellogenic Anemia ; Corpuscular Anemia ; Essential Anemia ; Progressive Pernicious Anemia.

Definition.—This is a primary anemia characterized by a decrease in the number of the red blood cells and a relatively high hemoglobin.

Etiology.—It is most common among males in middle life, but has been observed in young adults and in children. Atrophy of the gastric tubules, intestinal parasites (bothriocephalus latus), auto-intoxication and lesions of the sympathetic nervous system have been thought by some to be etiological factors.

Pathology.—There are marked changes in the blood, which is watery and of a pale red color. The specific gravity is lowered and coagulation is retarded. The red blood corpuscles may be reduced to 1,000,000 per cubic millimeter, the hemoglobin is not reduced in proportion to the red cells. The leucocytes are usually diminished to 4000 or less. There is a relative increase of the lymphocytes and a decrease in the number of the polynuclear neutrophiles. The color index is above normal and fibrin is reduced.

The skin presents a lemon yellow discoloration. The spleen is enlarged, while the heart, liver and kidneys show fatty degeneration and pigmentation. The stomach is small and the gastric tubules are atrophied. The bone marrow is usually softened and redder than normal, while the cells are increased and lymphoid in

character. Hemorrhages may occur in the retina, skin, gastro-intestinal and respiratory tracts.

Symptoms.—The onset is gradual. Extreme pallor, shortness of breath, weakness, palpitation of the heart, giddiness and headache are the first symptoms complained of. Weakness and loss of weight become such that the patient is confined to his bed and diarrhea and vomiting ensue, with pain in the chest. Hemorrhages in the retina, epistaxis, hemoptysis or hematemesis are common and purpuric symptoms and edema of the face, hands and feet arise.

The heart sounds are weak and hemic murmurs are common, while the pulse is weak and often irregular. The spleen is enlarged. The symptoms gradually increase in severity and death results. There may be a period of apparent recovery, but this is soon followed by a relapse, when the patient succumbs. Two or three relapses may occur. A fever may develop in the later stage of the disease known as anemia fever.

Diagnosis.—This must be made from the clinical history of the case and the examination of the blood. It should be distinguished in the mild form from other types of anemia, malignant growths and renal disease.

Prognosis.—This is grave, but recovery has occurred. Death is the rule in from one month to three or four years. There are periods in which recovery appears certain, but relapses follow.

Treatment.—The dietetic and hygienic treatment and massage recommended in chlorosis are of service here. The diet should receive most careful attention.

The use of bone marrow has rendered excellent service in certain cases, while in others it has exercised no influence. Butterin contains a large percentage of marrow and is better than butter as an article of diet. The gastro-intestinal tract frequently shows certain disturbances; the contents should be carefully analyzed and treatment given according to modern scientific methods. The movements of the bowels should be thorough and sufficient at all times, that auto-intoxication may not take place. A carbohydrate diet is often better borne by the patient than is one in which proteids form a large proportion. If the bowels are constipated and the stools extremely fetid, colon flushes are desirable. The more milk and carbohydrates are introduced into the diet, the less intestinal putrefaction will be present. Milk, cereals, eggs, fresh fruits and vegetables are usually well borne. These patients usually dislike meat and it should not be forced upon them, as in pernicious anemia the percentage of *hydrochloric acid* in the stomach is low. During the remissions the treatment and every precaution should be continued without any hesitancy. Prepared infant's and invalid's and predigested foods are beneficial in many cases.

Rest in bed for weeks in a well ventilated room or in a tent is highly beneficial. If this cannot be obtained, the patient may be carried out of doors for several hours each day. A systematic inhalation of oxygen begun early is often of great benefit. It is well to examine the stomach contents to see if the gastric atrophy is a feature, and if so the case should be treated accordingly.

The blood and the intestinal contents should be carefully examined for parasites, and if present, treatment instituted to remove them. As the quantity of blood is reduced, a hot normal salt solution should be given, either by enteroclysis or by intravenous method. If there is a history of syphilis this should be taken into account, although these cases are very unfavorable.

Massage is of service in many cases, as is a warm bath at night and a cool bath or a salt glow the following morning, followed by thorough friction. The cold bath should be omitted if the reaction is not good.

Arsenicum album.—This is the great remedy in pernicious anemia. The patient complains of great weakness and prostration and the face is pale and presents a cachectic deathly appearance. There is more or less edema of the face, eyes or lower extremities. There may be a general anasarca. The liver and spleen are apt to be enlarged.

Chininum arsenicosum.—This remedy should be studied in the cases in which weariness and prostration are the great characteristics and there is often a history of malarial infection.

Ferrum arseniate.—This is serviceable in those cases in which there is more or less anemia, with many of the symptoms that characterize arsenic.

Antipyrin 3x.—This in its provings produces disorganization of the blood and is of service in many of the cases when ecchymosis appears and the urine shows hemoglobinuria.

Cetrarin, a derivative of the Iceland moss, is highly spoken of. Where the active principle cannot be employed, the moss may be administered as food.

Picric acid produces many of the symptoms of pernicious anemia and should be remembered.

Cacodylate of soda has appeared to have some influence.

PURPURA.

Synonyms.—Peliosis; Morbus Maculosus; Hemorrhagic Diathesis.

Definition.—This is a constitutional condition in which there is an extravasation of blood into the skin, mucous membranes and internal organs. The hemorrhage varies in extent from a minute spot, termed petechia, to larger ones termed ecchymoses. At first they are bright red, later they become brownish. In these cases there is diminished tendency to coagulation of the blood.

Etiology.—In certain cases no special cause can be assigned for its development. In other cases debilitating diseases have preceded its appearance as typhus fever, pulmonary tuberculosis, carcinoma or chronic diarrhea. It may develop during the course of an infectious disease as articular rheumatism, dysentery, pneumonia, influenza, syphilis, diphtheria, etc. It may appear while the patient is under the influence of a poison, as *phosphorus*, *arsenic*, *mercury*, inhalation of sewer gas or auto-intoxication. Vaso-motor disturbances may produce it, as when it appears before or during the menstrual period or following fright, exposure to cold, excessive physical exertion and emotion. Anemic, delicate persons are especially susceptible to it.

Varieties.—Simple purpura, rheumatic purpura and hemorrhagic purpura.

Symptoms.—Simple purpura is a condition in

which hemorrhages occur in the skin. They are small and are designated petechiae. There are large hemorrhages known as ecchymoses. If of recent origin, these spots exhibit a bright red color, when older acquire a brownish, bluish-green or yellow color. The cutaneous hemorrhages occur earliest and most constantly upon the legs, while the trunk and upper extremities may be free from them. The patient is usually pallid, and if he remains in bed the cutaneous hemorrhages disappear quickly. If he gets up they reappear for weeks, and death has been known to occur.

Rheumatic Purpura.—In this variety the patient's attention is first directed to the articular pains, the knee and ankle being most frequently involved. The articulation is slightly swollen and tender to pressure and passive motion. Small cutaneous hemorrhages occur, which are often numerous about the articulation. The skin and mucous membrane become pallid and the red blood corpuscles and hemoglobin are diminished. The temperature fluctuates above normal, and there is frequently a mental depression. The duration of the disease varies, and in some cases may extend over several weeks with remissions and exacerbations, the latter appearing especially when the patient gets out of bed.

Recovery is the rule in most cases.

Purpura Hemorrhagica (Morbus Maculosus of Werlhof from the observer who first described it.—It may be divided into two varieties. First, a non-infectious form which is probably an acute manifesta-

tion of hemophilia. This occurs in young subjects, and is the most severe form. The hemorrhages are not confined to the skin alone, but the mucous surfaces as well, and epistaxis, bleeding from the gums, bowels, lungs, retina and the kidneys are met with. The condition of the patient is that of anemia from hemorrhage. The red cells and hemoglobin are reduced, and the white cells are increased. The clot formation is imperfect and the fibrinous net work is not definite. The duration of this variety is from a few days, to weeks and months, and may terminate in death.

The febrile type assumes many of the features of septicemia. The fever is high. There is loss of appetite, the appearance of epistaxis, oozing from the gums with ulcers and gangrene. The submaxillary glands are enlarged, and the breath is extremely fetid. Albumin appears in the urine and cardiac murmurs develop.

Post mortem examination shows submucous and subserous hemorrhages. Endocardial hemorrhages are numerous and usual. The spleen is always enlarged.

Of the sequelæ, nephritis. diabetes mellitus and cerebral paralysis may be mentioned.

Diagnosis.—In purpura simplex the diagnosis is comparatively easy, owing to the absence of the more pronounced symptoms, but this form may merge into a more severe form, the purpura hemorrhagica. Scurvy must be excluded from the latter. Febrile purpura is undoubtedly associated with some infec-

tion, the exact nature of which is not determined. Arthritic purpura rests upon the involvement of the joint.

Prognosis.—Febrile purpura is almost always fatal. The prognosis of the other forms depends upon their amenability to treatment.

Treatment.—The differentiation of the various forms is essential to their intelligent treatment. In all forms the patient should be placed in bed and kept quiet till such a time as the hemorrhages have ceased. Then the patient may be permitted to be up and around, but he should not return to his usual work for some weeks.

The food, with the exception of cases complicated with nephritis, should be given cold. It should be such as is easily digested, and contains an excess of albumin, as milk, eggs, beef juice and scraped raw meats, together with fruit juices, as oranges and lemons. Stimulants should not be given; even tea and coffee should be withheld. Care should be exercised to prevent constipation and avoid diarrhea.

Aconite should be studied in the febrile cases where venesection, purgatives and low diet would formerly have been employed.

Arnica montana should be remembered when the ecchymoses are present.

Adrenalin chloride.—Injections of a one per cent. solution, repeated daily, has had a most decided action in controlling purpural hemorrhages.

Echinacea angustifolia.—This remedy should be remembered in the febrile type of purpura hemor-

rhagica, when it assumes the malignant character, and the patient complains of the periodical flushing of the face and neck, which alternates with chilliness. There is profound prostration with severe headache.

Baptisia tinctoria should be compared when the septic condition is pronounced, and there is a disorganization of the blood.

Rhus toxicodendron, *arnica montana* and *thlaspi bursa pastoris* should be compared.

Acidum phosphoricum.—This remedy should be remembered especially in the simple variety of the disease; in weak, delicate subjects who were once robust, but who have become debilitated from loss of fluids, sexual excesses, acute diseases and chagrin. It has relieved cases of purpura in which the blood was oozing from various orifices, also from the pores of the skin of the abdomen and back.

Acidum sulphuricum.—This remedy produces symptoms similar to purpura and has proven curative in clinical cases when there was great debility and a sensation of tremor over the body.

Mercurius should be studied in certain cases of an asthenic febrile type.

Arsenicum album.—This remedy should be remembered when there are petechial exudations into the skin, and hemorrhagic effusions into the internal organs. The patient complains of weakness and prostration, restlessness, unquenchable thirst for small quantities of water at short intervals and a burning everywhere.

Lachesis, *phosphorus* and *hamamelis* should be compared in this connection.

Ledum palustre.—This remedy should be studied in rheumatic purpura. The disease begins in the smaller joints and gradually involves the larger joints. The parts feel painful and sore as if bruised, and there is a sensation of throbbing referred to the joint. There is cracking of the joint, with swelling and tension, and stinging pains when attempting to walk. In this variety *kalmia latifolia* and *bryonia alba* should be studied.

Arsenate of strychnia should be remembered when there is more or less edema about the ankles and fatty degeneration of the heart, feeble heart's action and purpura.

HEMOPHILIA.

Synonym.—Bleeder's Disease.

Definition.—This is a constitutional disease, characterized by a tendency to hemorrhages and a retarded coagulation of the blood.

Etiology.—There may be a hereditary tendency, which is transmitted through the mother to the males of the family. The proportion of the males affected to females is 13 to 1. The mother is seldom a bleeder herself. In rare instances the condition may be acquired.

Pathology.—The only abnormality noted is the delayed coagulation of the blood. The bleeding is capillary in nature and there is a constant oozing. The hemorrhage may occur in a joint, and repeated attacks result in a disorganization of the articulation.

Symptoms.—The bleeding is frequently the result of a trifling wound, a scratch, an operation, the removal of a tooth or of traumatism. It may come from the lungs, kidneys, urethra, stomach, mouth, nose or any part of the skin or mucous membrane. It may take place into any of the serous sacs or into a joint. It is usually manifested before the tenth year of age and cases have been recorded of it being a cause of death, as from umbilical hemorrhages of the new born. Death may result in a few hours, or life may be prolonged for weeks, when anemic symptoms develop. The blood of these patients is soon regenerated.

Diagnosis.—This depends upon the occurrence, especially in males, of repeated hemorrhages which

resist the usual methods employed for their control, and the peculiar hereditary history of the case.

Prognosis.—This is a serious disease. The prognosis becomes more favorable as the patient advances in years, and yet the tendency to hemorrhages never quite leaves. It is more serious in boys, as they are more liable to injury than girls.

Treatment.—All surgical operations and injuries should be avoided so far as possible in hemophilic patients. The breaking of the continuity of the skin or mucous membrane, either for extraction of a tooth or the puncture for the blood for its examination, should be undertaken cautiously. Girls known to be affected should not marry.

The patient should live in accordance with the strictest rules of hygiene. Diet and exercise in the fresh air are important. When the hemorrhage occurs the patient should be placed in bed and kept quiet. When the bleeding point can be reached, a local application of a solution of *adrenalin chloride*, 1 to 1,000, or the use of the powdered dried suprarenal extract should be made. The local application of a 5 to 10 per cent. solution of gelatine, or the subcutaneous injection of a pint of the same, the local use of *hydrogen peroxide*, *tannic* or *gallic acid* and solutions of *iron* should be borne in mind. *Calcium lactate* in 20 grain doses, three times a day internally, is of service.

Following the control of the hemorrhage, means should be adopted to overcome the secondary anemia and to remedy the constitutional defect.

In the case of severe hemorrhages, hypodermoclysis should be resorted to, a normal salt solution acting nicely in many cases.

Calcium chloride.—Seven grains administered every three hours has a most positive action over the coagulability of the blood, especially in sporadic cases, and should be remembered.

Thyroid extract in 5 grain doses, three times a day, has been of service in controlling articular hemophilia.

Gelatine is another agent that is valuable in this class of cases. A 2 to 5 per cent. solution by subcutaneous or by rectal injection, or six ounces given by the mouth daily, also has a favorable action in many cases of hemophilia

Lachesis.—This remedy should be studied in those cases in which there is bleeding from the various surfaces; in patients who complain of hypersensitiveness of the throat and waist so that they cannot bear the clothing to touch them. The bleeding is apt to become worse while the patient is sleeping.

Crotalus horridus.—When there is oozing of blood from every orifice of the body. The skin presents a jaundiced condition, which is dependent upon the degeneration of the blood, and is not a true jaundice.

Hamamelis.—This remedy where there has been a slow oozing of venous blood for months.

Phosphorus.—This remedy is also of service in chronic cases, when the patient is greatly exhausted, is melancholy and finds relief by weeping. There is a continuous oozing of the blood; the patient is

anemic and chlorotic. It is good for young people who grow too rapidly and are inclined to stoop.

Hydrastine, one-sixth to one-half grain hypodermatically, often affords prompt relief.

Crocus sativus.—This remedy should be studied in hemorrhagic diathesis in which the mental condition of the patient changes from the greatest hilarity to the deepest despondency, one moment affectionate the next in a rage. Other remedies to be studied are *secale cornutum*, *millefolium* and *cinchona*.

LEUCANEMIA.

This is a term applied to what some clinicians have looked upon as a combination of anemia and leukemia. It is acute and appears as an infectious inflammatory process of the tonsils, characterized by fever, prostration, pallor, hemorrhages, and enlargement of spleen, liver, and lymphatic glands. The red cells are diminished numerically, while the white are greatly increased. The normoblasts and megaloblasts are numerous, while the percentage of hemoglobin is relatively high.

The condition is fatal in from one to seven weeks.

HEMORRHAGIC DISEASE OF INFANCY.

Hemorrhagic syphilis of the new born may be congenital and appear within a few days after birth. The bleeding may take place from the navel, mucous membrane of the mouth or digestive tract. It may take the form of hematuria. Emaciation is rapid and death may result within a few days. Post-mortem examination reveals evidences of syphilitic disease, and hemorrhages in the viscera.

Winckel's disease is an epidemic hemoglobinuria which occurs in maternity hospitals. A fever develops about the fourth day after birth, gastro-intestinal symptoms appear, the urine becomes dark, and upon examination is found to contain albumin, casts and blood pigment. The skin becomes of a bluish color and death results in from twelve to forty-eight hours.

Buhl's disease is an acute fatty degeneration of the viscera of the new born, and is very similar in its effects to Winckel's disease.

Morbus maculosis neonatorum.—This is a disease characterized by hemorrhages from various organs. The bleeding may occur during the first week of life, but is frequently delayed till the second or third week. It is most commonly from the intestines and death usually occurs within a week.

Treatment.—The child should be kept perfectly quiet with the head low, and a uniform degree of heat, 90° F., maintained by hot water bottle, hot bricks or flat irons. The mother's milk should be

drawn and administered without raising the child. If this is impossible, other artificial food should be selected. The nourishment of syphilitic children requires special attention. If the point of bleeding can be reached, such methods as will assist in controlling it should be used.

In those cases in which syphilis is apparent, a preparation of *mercury*, especially the *biniodide* and the *protoiodide* and *syphilinum*, should be studied in connection with *crotalus*, when the bleeding appears from all the orifices of the body and from the ears, eyes, nose and gums and beneath the nails.

Lachesis is indicated when there are ecchymotic hemorrhages with great sensitiveness and hyperesthesia of the body.

Hamamelis should be remembered in venous oozing.

Phosphorus should be thought of in cases in which there is a tendency to hemorrhages together with fatty degeneration.

Acidum picricum, *phosphorus*, *terebinthina* and *hamamelis* should be remembered in those cases in which hemaglobinuria develops.

PSEUDO-LEUKEMIA.

Synonyms.—Hodgkin's Disease; Lymphatic Anemia; Malignant Lymphoma; Lymphadenoma.

Definition.—This is a progressive disease, characterized by a hyperplasia of the adenoid tissue, enlargement of the lymphatic glands, loss of weight, weakness and anemia.

Etiology.—The disease is noticed in those before forty years of age, more in males than in females. Mental anxiety, ill health, poor nutrition, malaria, rickets or syphilis appear as predisposing factors; while the exciting cause has not been isolated, it appears to be some irritant which produces a proliferation of the lymphoid elements.

Pathology.—The enlargement of the lymphatic glands may be first noticed in the anterior and posterior cervical, intrathoracic or abdominal glands. Early, the glands are freely movable, while as they enlarge they may become adherent. They may be hard or soft, and they seldom caseate or ulcerate. In some cases after death they may be found to be caseous and tubercular. The anemia is commonly of the chlorotic type, mild early, but severe toward the end of the disease. Poikilocytosis and nucleation of the red blood cells may occur in the extreme degree of anemia. The leukocytes are usually normal in number.

Symptoms.—The disease begins insidiously. Weakness is complained of, the glands gradually enlarge,

emaciation gradually steals over and anemia develops, and as a result there is palpitation of the heart. There is loss of appetite, and a fever of hectic type, develops. The glands may assume extreme proportions, and as a result of pressure upon the nerves, may cause paralysis, pain or edema. The spleen is enlarged. Toward the end of the disease there is profound anemia and cachexia with weakness and emaciation; hemic murmurs are heard over the heart. There is loss of appetite with dyspeptic symptoms. The duration of the disease is from one to three years, when death is the result of a gradual failure of the vital powers and from pressure upon the vital organs. Or death may terminate from intercurrent complications.

Diagnosis.—This is difficult during the early stages before the disease is fully developed. When the general symptoms and an examination of the blood lead to a differentiation from leukocythemia.

PSEUDO-LEUKEMIA.	TUBERCULAR ADENITIS.
1. The glandular enlargement is usually bilateral.	1. Usually unilateral.
2. There is no pulmonary involvement from cervical glands.	2. The lungs are usually involved from the cervical glands.
3. Glandular enlargement persists and shows a tendency to become general.	3. Remains confined to cervical group and does not become general.
4. Do not caseate and break down.	4. Do caseate and break down.
5. Blood changes characteristic.	5. Changes not marked.
PSEUDO-LEUKEMIA.	SARCOMA OF LYMPHATIC GLANDS.

May be impossible during the early stages.

1. Spreads by course of lymphatics.	1. Spreads by course of blood current.
2. Blood is characteristic.	2. High leukocytosis at times but not constant.
3. Spleen is usually enlarged.	3. Not enlarged.

PSEUDO-LEUKEMIA.	CARCINOMATA OF LYMPHATIC GLANDS.
1. Glandular involvement is primary.	1 Is nearly always secondary.
2. Spleen enlarged.	2. Usually not enlarged.
3. Appears before forty.	3. Usually after forty.

PSEUDO-LEUKEMIA.	LEUKEMIA.

In some cases may be very similar.

1. Splenic enlargement appears late, and may not appear.	1. Appears early.
2. Lymph glands always involved early.	2. May not be involved, and if so it is later.
3. White blood cells may not be increased.	3 Are always increased.

Prognosis.—This is grave.

Treatment.—This is not satisfactory; during the very early stages surgical procedure has been of service, but later it is of no use.

The diet should be highly nutritious and easily digested.

Arsenic has rendered more service than any other remedy. Injected directly into the gland a solution of equal parts of Fowler's solution and a 2 per cent. solution of *carbolic acid* has been of service in certain cases. Of this four drops should be injected the first day, while later one drop may be added each day till twenty drops are administered, or toxic symptoms appear; as indicated by a bad taste in the mouth,

nausea and vomiting, burning in the throat, thirst, loss of appetite, diarrhea, jaundice and abdominal pains and the rise of the temperature, when the medicine should be stopped.

Inunctions of *iodoform*, one part to fifteen of vaseline, over the tumors have been of service.

Phosphorus has also been of service in certain cases, and especially when *arsenic* has not been of service.

Sodium cacadylate has also been of service.

Ferrum arsenate has rendered some service.

LEUKEMIA.

Synonym.—Leukocythemia.

Definition.—This is a disease in which there is a persistent and constant increase of the white blood corpuscles, together with anatomical changes in all or any one of the following organs: spleen, bone marrow and lymphatic glands.

Varieties.—These are the spleno-medullary or myelogenous leukemia and lymphatic leukemia. The spleno-medullary variety is more frequent in adults, while lymphatic leukemia is most prevalent among children. Malaria precedes about twenty per cent. of the cases, while heredity, pregnancy, parturitions, syphilis and injury are perhaps predisposing factors. Some claim that it is of an infectious origin, but this has not been positively determined.

Pathology.—Owing to proliferative changes of the lymphoid tissue, the leukocytes and of the connective tissue, the spleen is greatly enlarged, especially in the spleno-medullary variety. The capsule is thickened and the surface of the organ is irregular in out line. On section the tissue is found to be dense.

The bone marrow of the spongy and long bones becomes softer than is normal. The fats are replaced by the proliferation of the cells. These changes are probably largely dependent upon the bone marrow disturbances. The liver and kidneys are enlarged and contain a collection of leukocytes in many places. Hemorrhages are common in various organs, skin and mucous membranes.

In the lymphatic variety, the lymph glands are enlarged, as a result of a hyperplasia of the lymph cells. The spleen is somewhat enlarged, but not to the extent that is observed in the spleno-medullary variety.

In the spleno-medullary form the red blood cells are at first diminished but little, while later they may be less than 2,000,000, but usually have an average of 3,000,000. Coagulability of the blood is greatly reduced, while the leucocytes are increased in number 250,000 to 300,000 commonly. The myelocytes are increased in number and are apt to show degenerative changes.

In the lymphatic leukemia the number of the red blood cells is reduced rather more than in the spleno-medullary variety and is from 2,500,000 to 3,500,000. The hemoglobin loss is greater in proportion than the diminution of the red cells would indicate. The leucocytes increase is not so great as is observed in the spleno-medullary form.

The lymphocytes are increased to about 90 per cent. of the leucocytes. This increase may be confined to the small lymphocytes, but sometimes the larger ones are also increased. The eosinophile cells are scanty and the polymorphonuclear cells are also greatly diminished.

In the acute lymphatic leukemia the red blood cells are greatly diminished in number. The leucocytes are increased, but not greatly, 30,000 to 70,000.

Symptoms.—In the spleno-medullary form the onset is slow and complaint is made that the abdomen is increasing in size and there is pain and discomfort

due to the enlarged spleen. Pallor and indications of anemia are apparent; in some cases, however, the patient may look well. The size of the spleen varies at times, but usually reaches the crest of the ilium and the median line of the abdomen. The liver is usually palpable. Feeble digestion, bilious attacks and indications of chronic gastritis are common.

Hemorrhages occur in the form of espistaxis, retinal and into the skin and mucous membranes.

The apex of the heart is raised, due to the spleen raising the diaphragm. The heart may be dilated and the pulse is rapid and weak. Hemic murmurs are heard in some cases. Shortness of breath is frequent during the last stage. Vomiting and diarrhea are common, ascites is met with and edema of the skin.

Remissions and exacerbations of the disease are common. Fever is usually present at some period. Uric acid and the xanthin bases are increased. Menorrhea is common in women. Death occurs from heart failure. Edema of the lungs, anasarca and ascites, hemorrhages of the nose and bowels and rupture of the spleen, pleurisy and pneumonia, occasionally precede the fatal termination.

Lymphatic leukemia of the chronic form begins slowly; the lymphatic glands of the body are more or less affected. The spleen is moderately enlarged, metastatic enlargement is common in the pleura, peritoneum, pericardium, skin, mucous membrane.

Acute leukemia, while this may be of the splenomedullary type, is usually of the lymphatic type. It

is usually of the young, the fever is high, there are subcutaneous hemorrhages and commonly septic conditions of the mouth. The glands and spleen are moderately enlarged. It should be distinguished from febrile purpura.

Diagnosis.—This rests upon the examination of the blood, a high leucocyte count with myelocytes, or a large excess of lymphocytes. It should be distinguished from splenic anemia, malaria and Hodgkin's disease. Lymphatic leukemia must be distinguished from conditions which may also produce lymphadenosis, as pernicious anemia.

The differential diagnosis of the two varieties of leukemia depends upon the blood examination and the condition of the lymphatic glands.

Prognosis.—This is generally grave, yet in many cases there are marked remissions when the leucocyte count may be normal and the spleen becomes much reduced in size and even normal. A tendency to hemorrhages with persistent diarrhea, early dropsy and high fever are unfavorable. The duration of chronic cases is from one to six years. The prognosis in children, in the acute form and in the lymphatic form, is always more grave; the duration is from one week to six months.

Treatment.—When the case comes under observation, the patient should be placed in bed and the best possible hygienic and dietetic treatment instituted. Splenectomy has been tried, but without any benefit.

The Roentgen ray has appeared to exercise some influence over the condition. Under its influence

there is temporary diminution of the number of the leucocytes in the blood and the size of the spleen; when the treatment ceases the conditions return. It is not as effecient in the lymphatic type. The exposures are made over the long bones, joints and spleen. They begin with short exposures and gradually lengthen them.

Bone marrow, either fresh or the glycerine extract, is extensively used, but the permanent results are doubtful.

Cold water douches or sprays over the spleen have a favorable effect in contracting the spleen.

Eucalyptus globulus.—This remedy has produced more definite results than any other remedy that has come under the author's observation; in those cases in which there was a positive history of malarial infection and cachexia in which the enlarged spleen, blood findings and minor symptoms all confirmed the diagnosis. In two cases, marked improvement was noted when they were lost sight of. The third was greatly benefited and has been under observation eight years. He has ceased his treatment three times and would drink till he called for aid to relieve the hemorrhage, when a few doses of *calcium chloride*, seven grain doses, every two hours would control the bleeding within twenty-four hours. This was followed with *eucalyptus*, which has always given relief and has held the condition absolutely in check for the past four years.

Ceanothus Americanus and the *polymnia uvedalia* have each been found highly servicable in those cases in which the spleen is much enlarged and painful.

Calcarea carbonica.—This remedy should be remembered in many of these cases when the blood shows moderate increase of the white cells. The patient shows a tendency to obesity with sweat about the head. The extremities are cold and are covered with a cold perspiration. The abdomen and head are large, while the neck is small. They complain of shortness of breath with diarrhea, acid stomach and sour vomiting. If the patient is a female, the menses are too frequent, too profuse and there is a profuse bland leucorrhea between the periods. *Calcarea arseniate* should be remembered and studied in this connection.

Picric acid.—This remedy has a profound action upon the system, producing a disturbance of hematogenesis, materially increases the white blood corpuscles, and alters the character of the red ones. It should be studied when the arterial tension is lowered, the respirations are shallow, the heart's action is feeble, rapid, there is great weakness with a profuse diarrhea, which is attended with pains in the stomach and bowels, and collapse is apparent. There is usually a violent occipital headache, which is aggravated by any mental condition and the patient is apt to complain of burning along the line of the spinal column. *Ferrum picrate* should be studied in this connection.

Arsenicum album.—This remedy is apparently indicated in certain cases of leukemia when there is great weakness, prostration and rapid emaciation.

The alimentary canal is disturbed so that there is unquenchable thirst for small quantities of water and very often. There is great burning everywhere and at times it is referred to the stomach. The patient is nauseated or feels squeamish; the stools are watery, dark, and excoriating. The skin is dry, and unhealthy. There is discoloration of the blood. The skin is white and pasty and often covered with a cold, clammy perspiration; the spleen is enlarged and there is frequently a history of a malarial cachexia.

CHLOROMA.

This is a condition characterized by the development of a greenish color in the periosteum and marrow of the cranial bones, especially of those about the orbit. There may be lymphoid infiltration of the cornea and conjunctiva. It has been looked upon as a neoplastic hyperplasia of the parent cells of the leucocytes, which develop in the red marrow and periosteum.

The symptoms consist of pain, exophthalmus, deafness, epistaxis and subconjunctival hemorrhages. There is pallor, weakness, anemia and leucocytosis. The changes are rapid and death is the usual termination of the case.

CHRONIC CYANOSIS.

This condition is characterized by chronic cyanosis of the skin, a polycythemia and splenic enlargement.

With these symptoms, the patient complains of weakness, headache, vertigo and prostration, while albuminuria, digestive disturbances, abdominal and dorsal pain are occasionally present. The blood is dark and the hemoglobin is increased (200); the red blood cells are also increased.

The condition is not understood and death has occurred in several cases.

GOUT.

Synonym.—Podagra.

Definition.—This is a disorder of metabolism characterized by the deposit of sodium urate in or around the joints, together with many and varied constitutional disturbances.

Etiology.—Over fifty per cent. of these cases show a family history of gout. Sedentary habits, alcohol, a liberal diet, lead poisoning, malt liquors and fermented wine, and a diet rich in proteids, are predisposing causes, the latter three being especially injurious to the gouty subject. It is more common among men than women. While it is most common in those past middle life, it may occur at any age.

Pathology.—The underlying morbid physio-chemical process that results in gout is not definitely understood. The articular cartilages of the involved joints are permeated with a white mortar-like deposit consisting of sodium urate, sodium chloride, potassium chloride, calcium phosphate and undetermined residues. The deposit is interstitial and is covered by a thin layer of normal cartilage. It may involve the tendons, ligaments, fascia and synovial membranes as well as the articular cartilage. The deposits may also be found in the helix of the ear, subcutaneous tissue, sheath of nerves, vocal chords and kidneys. The kidneys may be involved to such an extent that the condition is known as granular kidney. The nodular masses around gouty joints are

known as tophi. They may ulcerate through the skin and expose the chalk-like material.

Symptoms.—These may be acute or chronic. An acute attack may be preceded by some premonitory symptoms as flatulence, indigestion, headache, mental depression, neuralgia, giddiness, irregularity of the heart's action, itching, cramps in the limbs, respiratory disturbances, nervous sensations and highly colored urine containing an abundant deposit of urates. The attack appears suddenly; the patient is awakened at an early hour in the morning with a severe pain in the metatarso-phalangeal joint of the great toe. The pain increases in intensity and becomes agonizing and is aggravated by the slightest movement of the affected joint. After a few days the pain is easier during the day, but is worse at night. This continues from five to eight days. The affected joint becomes swollen, dusky red and tender. The temperature varies from 99° F. to 103° F. The tongue is furred and there is thirst, nausea and at times constipation is present. The urine is scanty, highly colored and strongly acid, and the patient is restless and irritable.

There is an interval of from one to two or three years between the first and second attacks, unless preventive measures are instituted and persistently carried out. If such preventive measures are not instituted, the attacks recur more frequently and a chronic gout results. In the chronic form the attack returns more frequently; the changes in the joint become more permanent and other joints are gradually in-

volved; while muscular, glandular and nervous organs are slowly implicated. The severity of the symptoms bears no relation to the deposits, which in some cases may be very small. In some instances, the joints of the hands are the most affected.

Some patients are well between the attacks, while others have irregular pains in the joints, stomach and nervous system, but they are not as severe as in the acute cases. To this, the term chronic or irregular gout has been applied. At times, as a result of an application of cold to an involved joint, pains appear in some other portion of the body.

Gout may appear in the skin in the form of an eczema, which is persistent. The nails are often brittle and are kept in order with difficulty.

It may affect the eyes when it appears as a conjunctivitis, sclerotitis, retinitis and goutyiritis.

Diagnosis.—In the acute form this is indicated by the sudden appearance of a severe and agonizing pain in the metatarso-phalangeal joint of the great toe at night. The pain moderates toward morning, but returns the next night. There is more or less fever and tenderness of the articulation. The attack gradually subsides.

Chronic gout is observed in those who have had repeated paroxysms of acute gout Deposits of urates take place around the diseased joints, articular joints and in kidneys and spleen. In some of these cases distinct "chalk stones" may be felt in the part. Arterio-capillary fibrosis and chronic interstitial nephritis are common in these cases.

Irregular gout is indicated by headache, indefinite muscular pains, digestive disorders, burning and tingling of the hands.

Prognosis.—If the case comes under observation early, careful attention to details is carried out in every particular, and no secondary change has resulted, the prognosis is good. If secondary changes have taken place, albumin is present in the urine, and the directions are not well carried out, the prognosis is bad.

Treatment.—Whether in a given case the gout is dependent upon an improper nitrogen metabolism and intestinal autointoxication or an improper elimination, must be considered from every standpoint.

The diet, its quality and quantity and the effects must be carefully scrutinized. The elimination through the bowels, kidneys, skin and respiration must be investigated, to ascertain if each organ is functionating properly. Alcohol and fermented liquors should be omitted, unless there is some imperative demand for them. The effects of tea, coffee and cocoa should be watched, and, if found injurious, they should be stopped, or greatly modified. Sedentary habits should be overcome and systematic open air occupation and exercise should be encouraged. Exercise should be started moderately and increased gradually, as in many cases the organs are not prepared for vigorous exercise at first. The so-called "poorman's gout" is dependent upon alcohol, improper food and bad hygiene. An approaching attack may be averted by a Turkish bath.

Diet.—This is most important in the management of these cases. The following constitutes a type of the meals for the day: Morning—fruit, toast, poached eggs (two), bacon (crisp), black coffee. Noon—fruit, oysters, fish, vegetables, bread, milk. Evening—meat, vegetables, stale bread, fruit, tea, cocoa or whey. Fats should be omitted if they tend to obesity. All vegetables should be prepared in a simple way, and only those are forbidden that do not agree with the stomach. Sugar and carbohydrates should be limited, as they cause fermentation and interfere with intestinal digestion. If the digestion is fairly good, they may be allowed in moderation. Organs containing large quantities of nucleins as brains, liver, sweet breads and kidneys should not be used. Eggs may be prepared by boiling or poaching, and in custard or omelet.

Of the fruits proper for gouty subjects are apples, quinces, raspberries, strawberries and mulberries. Those that are not good are sweet grapes, garden rhubarb, sorrel and uncooked tomatoes. Asparagus, carrots, celery and grapes that are not sweet are of service in cases of gout.

The patient should drink as much water as possible. If the patient does well without alcohol it should not be allowed, but when he has been accustomed to it, and complains of a lack of appetite or is weak and emaciated, small doses should be used. For this purpose there is nothing better than whiskey diluted with water. Milk, especially skimmed milk or butter-milk, has a favorable action upon the kid-

neys. The quantity of urine in twenty-four hours should be from three to four pints. Alkaline spring water should be taken in moderate amounts, as an excess of soda is liable to accelerate the deposits of biurates and thus provoke an attack of gout.

The patient usually demands some application for the painful articulation. A cradle over the foot that will keep the bed clothing from touching it is of service. The elevation of the foot by means of a pillow also helps to relieve the pain. A moist dressing of a hot saturated solution of *bicarbonate of soda*, a bran poultice or a preparation of equal parts of *ichthyol* and *vaseline* applied to the toe are often of service. If a moist dressing is not agreeable to the patient, the toe may be wrapped in cotton, or it may be painted with *collodion*. Other preparations that have been employed are equal parts of olive oil and chloroform, equal parts of *guaiacol* and *glycerine*, one part of the extract of *belladonna* and eight of *glycerine*. In all applications care should be exercised that the skin is not broken.

Aconite should be remembered during the acute attacks when the temperature is high, the pulse full and bounding and the patient is restless and nervous. There is mental anxiety that is difficult to allay.

Veratrum viride should be studied in acute cases when there is intense arterial excitement and congestion and the nervous phenomena that characterize aconite are absent.

Colchicum or its active principle *colchicin* should be studied in the acute attacks and in irregular gout.

The patient is usually of the robust, plethoric type. The affected parts are extremely sensitive to the touch. The pain is worse at night and shifts from point to point.

Apocynum and *rosemafolium* should be studied in those cases in which the patient complains of a chronic hepatic affection with dyspepsia and chronic constipation. The joints of the feet are painful; there are tingling pains in the toes and soles of the feet.

Berberis vulgaris is indicated when there is catarrh of the bladder, oxaluria and lithuria with burning, soreness and lameness in the sacral region and numbness of the legs and there are sharp sticking, radiating pains from the kidneys to the ureters. The urine is yellow or torpid and upon standing deposits a red mealy sediment.

Benzoic acid should be studied when the urine is a deep red color and has a strong odor resembling horse urine. This odor and color are characteristic. The gouty condition may involve the heart and articulations of the extremities, all of which show gouty deposits. The combinations of *benzoic acid* should be studied in connection with it, as *benzoate of soda*, *lithia*, *ammonia*.

Urtica urens.—Burnett, speaking of the influence of this remedy in attacks of acute gout, says, "Almost every case has yielded to it." Every case, of course, has not. Speaking of its administration he says, "My usual mode of administering it is by giving five drops of the mother tincture in a wine glassful of quite warm water, frequently repeated, say, every two or three hours."

Aurum metallicum should be studied in those cases in which the heart and kidneys show the effects of gouty infections. *Strophanthus* should be remembered when the liver and the right side of the heart show the effects of the gout.

Potassium iodide in two grain doses, repeated every two hours and given with a cup of hot water, has a prompt and favorable action in many instances.

Piperazinum in five grain doses, three times a day, dissolved in a large glass of water, has a most favorable action in chronic and irregular gout. It is useful when there is a constant backache and general muscular pains; the urine is highly colored and deposits a heavy brick dust precipitate upon cooking. It should be kept in a cool place and the bottle well corked.

DIABETES MELLITUS.

Synonyms. — Glycosuria; Saccharina; Diabetes Polyuria.

Definition.—This is a constitutional disease, characterized by the continuous presence of glucose in the urine.

Etiology.—This has not been definitely determined. It is associated with degeneration of the island of Langerhan in the pancreas and has led some to believe that there was an intimate relation here. There is an incomplete oxidation of the carbohydrates at least and an inability on the part of the organism to burn up the grape sugar. It occurs in both sexes. Obesity is supposed to favor its development. It appears to follow shock, nervous depression and diseases of the brain, especially of the medulla.

Pathology.—This is obscure. The subject whose death was due to diabetes showed wasting and extreme emaciation. Pathological changes of the pancreas, and especially of the island of Langerhan, are attended with glycosuria. An interference with the proper carbohydrate metabolism, which results in a hyperglycemia, is recognized as an alimentary diabetes, and another form, termed the nervous type, is recognized as dependent upon various diseases of the central nervous system as tumors, traumatism and neurosis.

In many cases the liver is congested, cirrhotic and fatty, and shows amyloid degeneration, while the

kidneys are found in a state of hyperemia and catarrhal condition, more as a result of the extra work imposed upon them than of any change incident to the disease. The heart often shows interstitial myocarditis, either of a fatty or fibrous character. The brain is edematous and the seat of small hemorrhages.

Symptoms.—There are two varieties, the acute and the chronic. Acute diabetes is observed in those before forty years of age and often in mere children and youths. The symptoms are rapidly appearing weakness, great hunger, the passage of large quantities of urine with high specific gravity, containing glucose. The skin is dry; the lips are parched; the tongue is red, sticky and covered with dark fur; the bowels are usually constipated. The patient complains of nausea and a sweet taste and the breath has a fruity odor (acetone odor). The sexual power is lost, the muscular strength impaired and the patient is depressed mentally. The urine is increased and from five to twenty pints or more are excreted during the twenty-four hours.

Chronic diabetes occurs in elderly people of both sexes and frequently in those who are obese. They complain of weakness, great thirst and hunger, and pass large quantities of urine. The bowels are usually constipated and the stools may have a fetid odor. The sexual desire is decreased and in women menstruation may be lost. Mental depression and often irritability are present. The skin is dry and rough, the nails brittle and the hair is thin and dry. The body temperature is below normal.

The cardiac impulse is usually weak and diffused. During the early stages of the disease the arterial tension may be high, while later it is low and often becomes rapid just before the appearance of coma. The alkalinity of the blood is reduced and it contains an excess of sugar. The specific gravity of the urine varies from 1.025 to 1.050. The color is pale yellowish green, but may be of a deep amber; it is always strongly acid. The urea is diminished while acetone and diacetic acid are at times present. Hunger is an important symptom. The stool may contain fat.

Boils, carbuncles and skin eruptions are common. Erythema and eczema of the genitals, especially in women, are most distressing. Necrosis of the skin occurs at times. The vision is often impaired. Cataract, inflammation of the retina and atrophy of the optic nerve often develop. The senses of smell and taste may be impaired. Deafness from otitis media has occurred.

Diabetic coma is the closure of the disease, especially in the young. The coma is in many cases preceded for a few days by the appearance in the urine of acetone or diacetic acid. Concurrently during this period the amount of urine and percentage of sugar are usually diminished. The duration of the disease in the young is from a few weeks to two years. In the chronic form the duration may be many years.

Diagnosis.—This is based upon the constant presence of sugar in the urine, together with the other symptoms as outlined.

DIABETES MELLITUS.	DIABETES INSIPIDUS.
1. Sugar is present constantly in the urine.	1. It is absent.
2. The specific gravity is high.	2. The specific gravity is low.
3. The skin shows boils and itching while cataracts and gangrene are fairly common and there is present a sweetish taste and fragrant breath.	3. These are absent.

It is seldom mistaken for Morvan's disease. Diabetes may be attended with necrosis of the bones, as is found in Morvan's disease, but the sensory symptoms are wanting and an examination of the urine should at once make a clear distinction.

Prognosis.—This is unfavorable. Acute cases and those dependent upon trauma are usually of rapid course. Cases in which there is a family tendency are also unfavorable. Death may ensue from complications, pulmonary phthisis, acute infectious diseases and gangrene.

Treatment.—*Prophylactic* treatment is of service. Those with hereditary tendency to neurosis, gout or obesity should receive definite instructions regarding their diet, exercise and general hygiene. It is doubtful if those whose family history shows a tendency to this form of diabetes should marry. Those with family tendencies should be careful in regard to the amount of their diet. They should not take much sugar, nor an excess of food, either liquid or solid. If obesity has already developed, it should not be reduced too rapidly, for if glucosuria is present the

rapid reduction of the obesity may be attended with serious results.

In the management of this disease both the quantity and the quality of the food should be taken into consideration, and the tolerance of carbohydrates be increased.

The mild type of diabetes readily responds to an appropriate dietary. Partial or complete withdrawal of carbohydrate food usually causes speedy disappearance of sugar from the urine.

The diet for a patient suffering from diabetes should be selected from the following list :

Butcher's meat, game, poultry, fish, tongue, ham, bacon, meat juices and extracts, soups made without flour, eggs, butter, cream, cream-cheese, ordinary cheese, salad, watercress, green vegetables, such as cabbage, Brussels sprouts, lettuce, spinach, French beans, pickles, almonds, cobnuts, walnuts, gelatine, jelly, almond biscuits, cocoanut biscuits, hock, moselle, claret, brandy, whiskey, tea, coffee (sweetened with saccharine if preferred) and possibly a small quantity of milk. Ordinary bread, when allowed, usually should be well toasted before being eaten by a diabetic patient ; the sole advantage being that he probably will eat less toast than untoasted bread. Bread prepared with flour from which the starch has been washed away, under the name of gluten bread, and a most unsuccessful substitute it is, is dry, chippy and tasteless, very expensive, and usually contains more than half as much starch as ordinary bread. Reputed starch-free bread should be tested

by allowing a drop of a solution of iodine to fall on it; if much starch is present, a deep blue color is produced. Almond bread contains about one-fifth the amount of starch that is present in ordinary white bread, and is therefore serviceable; but the most starch-free substitute for wheaten bread is that made with protein flour (prepared from milk), which contains less than three per cent. of carbohydrates.

The following substances should not be allowed when a strict dietary is prescribed:

Wheaten bread, white soups, liver, shell-fish of all kinds, all farinaceous foods, white vegetables and roots, such as carrots and turnips, potatoes, peas, celery, sweet fruits, such as cherries, apples and pears, dates and all dried fruits; cocoa, milk, sweet wines and malt liquors. Potatoes are the least objectionable of the vegetable substances in the above list, and, therefore, may be given in small amounts if the dietary is not intended to be strict.

In order that the patient may coöperate with the physician in the management of his case, he should know what ails him and he should not be made nervous about it, as there is a neurogenous form of diabetes, and an intense nervous condition will certainly aggravate it. In the majority of cases, a plain, thorough explanation of the disease, its prognosis and duration is usually sufficient. Neurotics may require more attention and the statement to the patient that his careful attention to the diet will remove the sugar from the urine is of service.

The physician should not examine the urine too

frequently, nor is it advisable so far as the patient's happiness is concerned. Unless the occupation is very laborious, the patient should be encouraged to continue it, as idleness tends to introspection, which is injurious. It is advisable to have him take a vacation once, and if possible, twice a year. The altitude should not be great, but the location should be such that exercise and mental diversion are possible. Ocean voyages are frequently beneficial. Exercise acts as a diversion, increasing the general tone and assisting in the reduction of the glycogen. The kind of exercise should be left to the patient to a very great extent.

As infection of the skin is a frequent complication, daily baths with soap should be recommended, and if infection has already taken place it should receive prompt treatment, that it may be controlled. The mouth should be cared for, the teeth kept free from tartar and any infection about them. Constipation is often an annoying symptom and should, if possible, be controlled by means of the diet.

The well selected remedy is of service in controlling many distressing symptoms.

Phosphoric acid.—This remedy should be studied in those cases where there is great prostration, emaciation, mental apathy and indifference. The face presents a pale, sickly appearance; the eyes are sunken and surrounded with dark bluish rings, and the patient is quiet and apathetic. He passes large quantities of clear urine.

Uranium nitrate.—This remedy should be remem-

bered when there is great thirst with prominent gastric symptoms.

Creosote.—This remedy should be remembered when there is an acrid corrosive character to the secretions and a putrid odor from the mouth. There is more or less gastric irritability with flatulence and slow digestion. The patient is greatly emaciated and the urine is copious.

Ferrum arsenate.—This remedy should be studied when there is more or less anemia and frequently a history of malarial infection.

Arsenicum iodatum.—This should be studied when there is rapid loss of flesh with disturbances of the gastro-intestinal tract.

Arsenicum.—This remedy has also been of service when the cardinal indications of the remedy are present.

Aurum mur.—This remedy should be studied if the nervous, despondent symptoms predominate and arterio-sclerosis is present.

Syzygium jamholanum.—Five to ten grains of the powdered seeds have been of service.

Codein.—This agent in doses of from one-fourth to one-half grain three to four times a day has a most positive action in controlling the amount of sugar.

Phloridzin.—Under the influence of five grains of the IX trituration this has a favorable action in controlling the sugar.

Lactic acid.—This remedy completely controlled the sugar in the urine in one case, in which the sugar, extreme thirst and rheumatism of the smaller joints were the prominent symptoms.

DIABETES INSIPIDUS.

Synonyms.—Polyuria; Diuresis.

Definition.—This is a condition in which the patient persistently passes a large quantity of urine, of low specific gravity, pale in color, but otherwise normal.

Etiology.—Disorders of the nervous system, injuries of the cerebro-spinal axis, a point in the floor of the fourth ventrical, intra-cranial tumors and epilepsy, favor its development. It may be associated with abdominal tumors, tuberculosis, syphilis and peritonitis, or it may develop during convalescence from one of the acute diseases. Violent emotion, as fright, has been known to precede its development. It is more common in men than in women and in those before the thirtieth year of age.

Pathology.—No structural lesion has been demonstrated that would account for the disease. It is believed to be due to a relaxation of the vessels of the kidneys.

Symptoms.—The two leading symptoms are the excessive thirst and the great increase in the quantity of the urine. The onset may be rapid or insidious. If it is associated with chronic affections of the brain or spinal cord the onset is insidious. The quantity of urine passed in twenty-four hours may amount to from eight to twenty liters. It is of a light yellow color, and may have a greenish appearance. It is neutral or feebly acid in reaction. The specific grav-

ity may be below 1.010. The thirst is excessive, the mouth is dry, the sweat is diminished and the skin is dry and harsh. Constipation is often complained of, but otherwise there are no gastro-intestinal disturbances. The temperature may be subnormal. The disease is usually of long duration, but in certain cases runs a rapid course.

Diagnosis.—This is based upon the large quantity of urine passed, without sugar, with a low specific gravity in a young subject.

It should be distinguished from diabetes mellitus and chronic interstitial nephritis. The sugar in the urine is diagnostic of diabetes mellitus.

DIABETES INSIPIDUS.	CHRONIC INTERSTITIAL NEPHRITIS.
1. It usually appears before the thirtieth year of age.	1. It is a disease of middle or advanced life.
2. There is a large quantity of urine of low specific gravity; it rarely contains albumin or casts.	2. There is a large quantity of urine of low specific gravity, and it contains traces of albumin and casts
3. The circulatory system and heart are not affected.	3. Arteriosclerosis, cardiac hypertrophy and accentuation of the second aortic sound are present.
4. The eyes are not affected.	4. Albuminuric retinitis is common.
5. It are rarely fatal.	5. It is gradually progressive and fatal.

Prognosis.—While rarely curable, it is favorable as to life. In cases dependent upon syphilis and other disease amenable to treatment, it may be recovered from.

Treatment.—In undertaking the treatment of this disease a most careful examination of the individual cases should be instituted to ascertain if possible the cause of the disease and if possible to correct it. In many of the cases dependent upon brain lesions but little can be accomplished, while in syphilitics and those dependent upon arteriosclerosis and tuberculosis more may be accomplished.

In those cases in which hysteria and that indefinite condition, "nervousness," is present, suggestion may have a beneficial effect.

Hydrotherapy in the form of douches, warm or cold baths, packs, half baths, are beneficial, especially in the cases of children. In some cases electricity in the form of galvanism, the constant current over the upper part of the spinal cord, or one pole to the loin and the other to the hypochondrium on the same side for a few minutes, then on the opposite side, or the anode to the nape of the neck and the cathode first to the loin and then to the epigastrium, is beneficial. In other cases it will be found that the patient is drinking an enormous quantity of water; this should be carefully corrected. The water should be withheld gradually. The dry diet is beneficial, but is difficult to carry out in many cases.

Adrenal extract internally has given good results in many cases.

Secale cornutum.—While this remedy has been employed in material doses with transient benefit, yet in the 2x dil. it has acted curatively when the black colored tongue, polydipsia and polyuria were the leading symptoms.

Scilla maritima.—This remedy in its provings increases the amount of urine and the quantity of the inorganic solids. This it accomplishes by its action upon the circulatory system, its action upon the heart being similar to that of *digitalis*, but it is not as powerful. It is quickly diffused through the blood and its passage through the kidneys and the epithelium is stimulated and acts from both sources. Its action is marked in the 2x dil.; continued over a period it has been highly beneficial.

Phosphoric acid is indicated in those cases that are of nervous origin. The patient passes large quantities of clear urine. There is mental enfeeblement and apathy, he seems tired, too tired to talk or think, the back is tired, tired all over with paralytic weakness. Phosphaturia or oxaluria are frequently present.

Chloride of gold and sodium.—This remedy should be remembered in those cases in which the neurasthenic symptoms predominate. The urine is greatly increased in quantity, the bowels are constipated. There is pronounced melancholia and the health has been undermined by syphilis, hypochondriasis, mental and nervous disorders.

Murex is indicated when there is frequent desire to urinate; even at night the patient passes copious amounts of clear, light colored urine. There is extreme erethism of the female sexual organs, the least touch of the part arouses the sexual desire, which becomes so violent as to fatigue the will and reason. The patient is distinctly conscious of a womb.

Lycopodium should be studied when the urine is clear, like water, or turbid. There is excessive thirst, obstinate constipation, feces small in quantity and hard. The patient is low-spirited.

The *uranium* and other remedies that have proved useful in diabetes mellitus should be remembered in these cases.

Agurin in one grain doses, three times a day has, relieved some cases.

OBESITY.

Synonyms.—Corpulency; Polysarcia.

Definition.—This is a condition in which an excessive amount of fat is formed and distributed over the body.

Etiology.—It may be hereditary or acquired, while age, diet and habit have much to do in its development. After the fortieth year of age, the members of certain families show a tendency to obesity; they also take less exercise, and as a result, tissue oxidation is imperfect. An abundance of saccharine, starchy, fatty foods, together with the use of alcohol, favor obesity.

In obesity subjects, the heart and liver are apt to undergo fatty infiltration, and fatty degeneration results. Women are apt to have gall-stones form and renal calculi; arterio-sclerosis, seborrhea, eczema intertrigo are also common.

Prognosis.—In those cases in which there is a hereditary tendency to obesity, but little may be gained by treatment, while in those cases where it is the result of improper diet much may be accomplished if they correct their diet.

Obese subjects do not bear surgical operations, severe injuries, nor acute disease well. They are prone to heart failure, rupture of the heart, angina pectoris, edema of the lungs, apoplexy and uremia. Hemorrhoids and constipation are frequently present.

Treatment.—Before undertaking the treatment of

one of these cases, it should be determined whether the case is plethoric or anemic, also whether there is a hereditary tendency in the case. The condition of the blood, heart, liver and various functions of the body as well as the rate of the increase of the patient's weight, should be considered. The age of the patient should enter into the consideration, and in the cases of those below twenty, while the diet should be corrected, but little else should be undertaken. The weight should be reduced slowly; when ten to fifteen pounds have been reduced, a period of rest should be allowed, and after a period of four or five weeks of restricted diet a short vacation should be instituted. Care should be exercised in those past the medium of life who are approaching old age, as a material reduction frequently hastens the breaking down of the bodily functions, and for those who have been fat all their lives a reduction cure should not be undertaken. If the weight is only forty to fifty pounds above the normal for their age, and they are aged, reduction should not be undertaken, but the diet and exercise and habits should be so instituted as to prevent further increase. A slight degree of obesity (ten to thirty pounds) does not require attention. It should be remembered that in some cases the loss of abnormal fat leads to constipation, hernia, gastroptosis, dislocation of the kidney and of the uterus.

Persons with a hereditary tendency to obesity should avoid fat forming foods and take regular exercise.

There are two features to be borne in mind, the one is the reduction of the amount and modification of the character of the food of the patient, and the second is the reduction of the excess of the fat already formed by increasing the activity of the metabolism.

Many and varied have been the dietary tests introduced to meet these objects. Fatty foods are not as liable to cause obesity as are carbohydrates and also proteids. The latter should be taken sparingly. Lean beef, fowl, ham, mutton, tongue, codfish and small quantities of cheese may be chosen from. Green vegetables, salads (without dressing), and a small amount of fruit may be allowed; potatoes, peas, beans, carrots and starch foods should not be allowed. The carbohydrates are best represented by bread in the form of toast, which may be thinly buttered. No sugar nor articles containing sugar should be allowed. Two or three pints of water represented by tea, coffee, skimmed milk, a tumbler of hot water may be taken between meals by gouty subjects.

The condition of the heart should be taken into consideration, as well as the urine for albumin and sugar, and the examination repeated from time to time, as the reduction may affect unfavorably a fatty heart or a case of diabetes mellitus. The weight should not be allowed to drop more than three pounds a week, and at the end of a month a slight pause should be made and a little addition made to the diet and the results noted.

Apart from the diet there should be methodical exercise in the open air, walking, bicycling, horse-

back riding and gymnastics. In the very obese, massage should be practiced at first; a limit should be placed upon the operation, and a certain time for each treatment, but gradually it should be increased. Care should be exercised at all times that the heart is not overtaxed. Cold, fresh or sea baths, Turkish or steam baths are indicated. Spa treatment and the Carlsbad and Kissingen water are also of service.

The basis of the medical treatment of obesity is *iodine*, under the influence of which the fatty tissues first disappear, then the glandular structures generally, and those of the stomach as well, which is often a serious condition. In one case that came under the author's observation in which the woman had taken a patent medicine to reduce the flesh the glands were destroyed and death resulted. The medical treatment is not satisfactory and not always safe.

Phytolacca berry tablets, two tablets before each meal, or immediately after, are said to have an influence in reducing fat. The tincture of *phytolacca* in two-drop doses every six hours is also of service.

Fucus vesiculosus, which contains a percentage of *iodine*, has been used by the laity for this purpose for a long time. Four fluid drachms of five to thirty grains of a solid extract is given three times a day.

Thyroid extract, three to five grains, is of service in those cases in which there is a deficiency of the thyroid gland.

Baryta iodide has been used in this connection.

Vinegar has an influence in reducing the flesh, but its prolonged use by the laity has been known to be the cause of death.

MAL-NUTRITION.

Synonyms.—Leanness; Emaciation.

This may be a natural or family characteristic. If it is hereditary, but little can be accomplished to overcome it. If a member of a family that is naturally plump becomes lean, the case may be considered one of mal-nutrition.

Among the etiological factors are tuberculosis, wasting discharges, mal-assimilation. The deficient formation of bile or the interference with its passage along the intestinal tract, an abnormal secretion of pancreatin interferes with the assimilation and digestion of fats, a derangement of the glycogenic function of the liver, may lead to emaciation. Individuals who are continually on the move "abnormal motility."

Treatment.—These patients should cultivate leisurely ways when a latent tuberculosis is the cause of the condition: it should be overcome by rest, both mental and physical. It should be ascertained whether or not the liver and pancreas are functionating normally. Do the stools contain bile? Is the food completely digested? If the organs are not acting normally, *iridin* and *euonymin* are of service in many of these cases.

If there are no contraindications, the subject should partake freely of sweet farinaceous fruits, food sweetened with sugar or honey, and should avoid active exercise, apart from what is actually needed for health. The oil extract of the berries of the Saw palmetto is highly beneficial.

Inunctions of olive and cod liver oil, butter, cocoanut oil and Saw palmetto are of service when they cannot be administered by the mouth.

RACHITIS.

Synonym.—Rickets.

Definition.—This is a disease of nutrition occurring during childhood, characterized by unhealthy alvine secretion, pain in the limbs, perspiration about the head, muscular weakness, retarded ossification and dentition, abnormal growth of the cartilage causing deformity of the head, trunk and limbs.

Etiology.—It is most common in those from three to fifteen months of age. The children of syphilitic or tubercular parents have a predisposition to rickets. Improper diet, a lack of fresh air, sunshine and general unsanitary surroundings are exciting causes. A diet that is low in mineral ingredients and fats, and a deficiency of the food constituents in the mother's milk, as well as the habits of certain mothers of nursing the child too long, and an excess of farinaceous food, all assist in producing this condition. Poor ventilation and a lack of sunshine in the apartments, as well as exhalations from closets, open drains, personal cleanliness and poor preparations of food, are each factors in its causation.

Pathology.—The most marked changes are noticed at the end of the long bones. There is excessive proliferation of the cartilage cells between the shafts and the epiphysis. The cells are irregular, both in size and position. The area of proliferation is from one-half to an inch in thickness. The line of ossification is softer and more vascular and irregular than

is normal; as a result the bones are soft and shorter than is normal, and are covered with porous overgrowths of osteoblasts. In the cranial bones this delay of the ossification gives rise to widely open fontanelles and the so-called cranial tabes, when the bones crackle under the finger. The frontal and parietal bones become hypertrophied, producing a square flat head and prominent forehead. The lime salts are reduced from the normal, which is about 65 per cent., to from 30 to 35 per cent.

In the chest a vertical groove may be observed between the fourth and eighth ribs upon its lateral aspect, producing the "chicken-breast." A transverse depression extending from the xiphoid cartilage towards the axilla may be present; this is known as "Harrison's groove." The bead-like nodules which appear at the junction of the ribs with their cartilages is known as the "ricket rosary."

Spinal curvature is common, the lumbar lordosis is accentuated. There is thickening of the scapula, the antero-posterior diameter of the pelvis is narrowed, while the iliac bones are distended.

Symptoms.—This disease appears slowly, the period of the first dentition is delayed. The child is peevish and irritable and there are disturbances of the gastro-intestinal tract, as nausea, regurgitation of food, flatulence and constipation. The temperature may be below normal, but later it is from 100° F. to 102° F., and the child sweats profusely, especially during sleep, when it is sleepless, restless and there is a general soreness all over the body. The head becomes

of a rectangular shape and the face is small when compared with the skull. The spleen is frequently enlarged, and an examination of the blood shows a condition of anemia of the chlorotic type to be present. Laryngismus stridulus may occur, while tetany has been observed. There is usually tenderness of the epiphysis and bending of the ribs, and a soft spot may be observed over the occipital and parietal bones, which crackle like parchment under the pressure of the fingers. The fontanelles are late in closing. The ligaments of the joints are relaxed and cause weak joints. The child usually has an abundance of adipose tissue, enlargement of the lymphatic glands, hypertrophy of the tonsils and adenoids.

Complications.—These are bronchitis, emphysema, tetany, convulsions, spasms of the larynx and chronic hydrocephalus.

Diagnosis.—This is usually easy from the symptoms as outlined.

RACHITIS.	SYPHILIS.
1. The bone affections are confined to the epiphysis.	1. They are in the extremities or shafts.
2. There is no necrosis of the bone.	2. There may be necrosis.
3. The enlargement is of the bone itself.	3. The enlargements are like soft swelling over the bone.

RACHITIS.	MOLLITIES OSSIUM.
1. A disease of childhood.	1. A disease of adult life.
2. There are abnormalities in developing bones.	2. There are changes in developed bones.
3. Recovery is the rule, only sequels remaining.	3. Usually a fatal termination.

RACHITIS.	SCURVY.
1. The gums are natural.	1. There are typical gum lesions and hemorrhages.
2. The thinned bone is characteristic.	2. Is not present.

Prognosis.—This is rarely fatal. The complications may be more serious. The course of the disease is chronic. The disease ceases at about the second year, when the diet becomes such that it overcomes the condition. The future health of the patient may be influenced if there is marked deformity of the chest. The bowing of the legs may interfere with the patient's normal stature.

Treatment.—The prophylactic treatment accomplished much in this disease, as it is a preventable disease. If it is found that the mother's milk has not the proper ingredients to nourish the child naturally, the child should be given modified cow's milk, or a wet nurse obtained. Older children should have a diet in which fats and proteids form a large percentage, the carbohydrates being limited so far as possible. Milk, cream, eggs, stewed fresh fruits, and meats should form a large percentage of the diet. Inunctions of olive or cod liver oil, following the daily bath, are often of great service. The child should be in the fresh air and sunshine as much as is possible. The living rooms should be thoroughly ventilated, and all cesspools and other sources of contamination should be corrected. As the child is usually restless, flannel nightdrawers with feet should be worn that the child may be protected from cold and draughts.

Cool sponge baths are beneficial if followed by thorough friction.

City children if possible should be removed to the country, or, if this is impossible, they should spend their days in parks or play grounds, or upon roofs; every care should be exercised to avoid the child lifting; it should not be encouraged to support itself upon the legs, as this leads to deformity of the spine and legs and is one of the problems in dealing with the disease. Keeping the child off its feet and placing it in such a position that will keep the legs straight will often help these cases.

Phosphorus.—This remedy is of service in many cases having a decided action upon the epiphysis, and arouses the osteogenitic activity and produces cartilage rather than true bone. The child presents a pale, sickly face, the eyes are sunken and are surrounded by a deep blue ring.

Acidum phosphoricum.—This remedy is also of service in this disease, when the child is weakly, indifferent, apathetic and there is complete indifference to everything. The urine is milk-like, and contains an excess of phosphates.

Calcarea phosphorica.—This remedy should be studied in those cases in which dentition is retarded, the fontanel is pendulous (pot bellied), the child dislikes to be handled. The bones are soft and spongy and fragile or easily bent.

Calcarea carbonica.—While this remedy meets the objective symptoms, it does not meet the subjective as well as the last named remedy. The child is fair,

fat and flabby, sweats about the head profusely while sleeping. The head is large and the fontanelles are slow in closing. The child is slow in trying to walk. There are apt to be sour eructations, sour stomach, sour vomiting, sour stools and odor from the body is sour.

Silicea.—This remedy should be remembered in "scrawny" cases in which there is a tendency to boils in various parts. The face is pale, cachectic, earthy yellow, pinched, old looking and an appearance of weakness. The fontanelles remain open. The head is too large, while the rest of the body is emaciated. The bowels are apt to be constipated, the stool is partially expelled and then recedes into the rectum. There are often night sweats which are sour, offensive and debilitating.

Ferrum phosphoricum.—This remedy should also be borne in mind as one that might be of service in certain cases.

Mercurius sol., *sulphur* and *psorinum* should be borne in mind.

CHRONIC RHEUMATISM.

This may be a sequel of an acute attack, or it may develop slowly, and progress with slight exacerbations from time to time without any very definite starting point. It is observed in those who are exposed to the various changes of weather and who are poorly fed. It is confined to the joint structures, capsules, ligaments and tendons. The bones are not enlarged to any extent.

Symptoms.—There is pain, stiffness, and swelling affecting one or more of the joints. The pain is modified by the weather and the winds. At times the movements of the joint may be somewhat restricted, but it is never completely ankylosed. The stiffness is worse after rest, it is lessened by movement. There may be a degree of cracking when the joint is moved. The general health may be but little affected, but a condition of anemia is usually present.

Complications.—These are ankylosis of the joints, atrophy of the muscles about the joints, and chronic endocarditis in prolonged cases.

Diagnosis.—This condition is constantly being diagnosed as arthritis deformans, from which it should be carefully differentiated, as well as those dependent upon syphilis, gouty diathesis, those due to spinal disease and those the result of chronic suppuration.

Prognosis.—Under the most favorable conditions, this disease may be modified, but frequently it is difficult to regulate the conditions, and as a result, while

it does not shorten life, it is frequently quite intractable.

Treatment.—This requires a most thorough investigation of the employment, habits and diet of the patient. The patient, if possible, should have such an employment that he has not to be exposed to inclement weather and sudden changes of the temperature. His habits should be thoroughly investigated and alcoholic beverages, excesses of all forms that will favor the development of rheumatism should be stopped. The diet should be one that is nutritious, carefully avoiding the overloading of the stomach, and an excess of meats. Pure water should be taken in such quantities that at least three pints of urine are excreted in twenty-four hours. The residence should be one that is dry, well ventilated, and with sufficient window space, as moisture and a lack of sunshine are injurious. The under-clothing should consist of wool or silk, as linen and cotton favor a rapid radiation of the heat.

During an acute attack, the patient should be put to bed, the joint partially immobilized, and a diet consisting of milk, fresh fruits, and vegetables be used. If thirst is complained of, one of the charged and slightly alkaloid waters is preferable.

If there is much swelling and pain, the joint should be wrapped in cotton batting, which is covered with oiled silk. Some patient may prefer a moist dressing, in which case warm salt water is often beneficial, and the dressing should be kept moist.

Mud baths render some benefit in certain cases by virtue of the high degree of temperature that is ap-

plied to the affected joint, as well as the irritation and pressure of the mud to the affected joint which assist in the absorption and moving of the pathological exudates.

At home the application of hot sand bags at a temperature of about 150° F. is of service, as it gives the pressure and heat. Hot air baths have merit and enable the application of a dry heat from about 300° F. to 400° F. without any discomfort to the patient on the affected parts. Sun baths and electric baths also apply heat and in so far are beneficial. Alternate douches of hot and cold water (Scotch douches) are of service in those cases in which the condition does not change.

General faradization and galvanism are of service in assisting nutrition, lessening pain and favoring the absorption of exudates.

In the selection of a remedy, too much importance should not be attached to the local symptoms, but the general symptoms should be given a prominent place.

Bryonia alba.—This remedy should be studied when there is great lameness of the affected parts with a desire to keep quiet, as motion aggravates. The bowels are constipated, the stools are dry, brown and hard. There is great thirst with frontal headache and a white coating of the tongue.

Rhus toxicodendron should be remembered when there is stiffness which the patient complains of when beginning to move. They also feel worse before and during a storm, are worse from rest and improve from gradual motion. The joints are swollen, but the ten-

don sheaths and aponeuroses about the joint are most involved.

Rhododendron should be remembered in much the same group of symptoms as *rhus tox.* The patient is more susceptible to the changes of the weather, the distress being relieved when a storm breaks, which is not true of *rhus tox.*

Colchicum.—This remedy and its active principle, *colchicine*, should be remembered when there is a gouty tendency in the case; the pains are deep-seated, involve the smaller joints and are of a tearing character. Strong odors, a touch and bright lights give the patient great annoyance.

Lædum.—This remedy is of service when the smaller joints are involved and there is a sensation of heat and bruised soreness. The pains shift rapidly. The process is apt to begin in the lower limbs and ascends. This patient complains of being cold all the time, and frequently gives a history of having taken large quantities of alcohol.

Kalmia latifolia.—This remedy should be remembered in those cases in which the heart has been involved by the rheumatic process, and there is a frequent alternation of the rheumatic process between the heart and the extremities. There is numbness of the affected parts. The pains are intense and move from joint to joint. The muscles of the neck and back are sore and lame, and there is a sensation of great weakness.

Phytolacca.—This remedy should be remembered in those of a rheumatic diathesis when the fibrous and periosteal tissues are especially involved. The

pains are heavy and aching in character and are worse at night and during damp weather. There may be a history of syphilis, gonorrhea or diphtheria infection.

Mercurius solubilis.—This remedy should be remembered in syphilitic patients who suffer most at night and from the warmth of the bed. They are not relieved by sweat, even if it be profuse. They are worse in cold damp weather. *Dulcamara* should be compared for the aggravation from living in cool, damp apartments.

Sodium iodide should be compared with *mercurius* in syphilitic cases, and when the nightly aggravation is an important feature.

Cimicifuga.—This remedy should be studied in those cases in which there is menstrual derangement attending the rheumatic process and the muscles are also involved in the process.

Lycopodium.—This remedy should be studied in purinemic patients who are annoyed with flatulence. There is a pain of an aching, tearing character. The conditions are worse during the close of the afternoon and while at rest. *Benzoic acid* and *benzoate of ammonium* should be compared.

Calcarea carbonica.—This remedy should be studied in the leukemic subjects who are susceptible to every change of weather, or who feel the effects of working in water. The general indications of the remedy are present.

Pulsatilla.—This remedy should be studied in the cases of those slow phlegmatic, anemic, chlorotic subjects when the pains are drawing or tearing in character and rapidly shifting from one point to another.

ARTHRITIS DEFORMANS.

Synonyms.—Rheumatoid Arthritis; Osteo-arthritis.

Definition.—This is a chronic joint disease characterized by changes in the cartilages and bones and by the formation of bony outgrowths which interfere with the movement of the joints.

Etiology.—It is thought by some to be of nervous origin, by others to be of microbic origin. It is more common among women than men. Bad hygienic surroundings, mental strain, worry, and grief appear to be predisposing factors. It is sometimes associated with chronic pulmonary disease and follows influenza. Under this heading, two conditions are recognized.

Osteo-arthritis (chronic rheumatoid arthritis), a process in which the cartilages, synovial membrane and fibrous tissue of the joints are involved and accompanied by a proliferation of the bony tissue. It occurs in those of middle and advanced life.

Fibro-arthritis (acute rheumatoid arthritis) occurs in young adults; it is a polyarticular disease and affects the synovial membrane, the fibrous and ligamentous tissue of the joint, but there is a complete absence of the bony proliferation that accompanies the osteo-arthritis.

Pathology.—This is confined to the joint and the nutrition of the affected parts. The cartilages of the joints become thinned, softened and are gradually absorbed until the ends of the bones are in opposition; proliferation of the end of the bones ensues, and they

become thickened forming osteophytes (Haygarth's nodosities). The ligaments become thickened and partial ankylosis results. The surrounding muscles become atrophied and the nerves inflamed. Atrophy and softening of the end of the bones are observed in long standing cases, while the process is usually in the small articulations, the larger ones may be involved in time.

Symptoms.—The onset varies. In some cases it appears suddenly during the night when there is a sensation of tingling and burning in the affected joint which soon shows swelling. The metacarpo-phalangeal joints are the ones most often affected, and hard nodules may develop at the side of the distal phalanges ("Heberden's nodes").

Following a period of months or years, other joints are involved, and pass through the same process. The pain and swelling are seldom, if ever, wholly absent from the joint. The nutrition of the joint and its surrounding structures is more or less impaired. The heart's action is increased, the temperature is not disturbed to any degree, a glassiness and pigmentation of the skin of the affected area is often noted.

Diagnosis.—While this does not present any difficulties it is often mistaken for chronic rheumatism.

RHEUMATOID ARTHRITIS.	CHRONIC RHEUMATISM.
1. The small joints are involved at first.	1. The larger joints are involved at first.
2. The changes are partially destructive in character and occasion peculiar deformities, while irregular exos-	2. The deformity is dependent upon hyperplasia of the fibrous structures entering into the joint.

RHEUMATOID ANTHRITIS.	CHRONIC RHEUMATISM.
toses form on the articular extremities of the bones.	
3. The joint involvement is not symmetrical.	3. The joint involved is more symmetrical.

RHEUMATOID ARTHRITIS.	GOUT.
1. Pain dull and often continuous.	1. The pain is often paroxysmal.
2. Usually observed in the underfed.	2 Usually in those who are overfed.
3. There are no deposits of uric acid and urates.	3. These are characteristic.
4. There are peculiar deformities of the hands and feet that are characteristic.	4. These are absent.
5. The fibroid conditions of the kidneys, heart and vessels characteristic in gout are absent.	5. These are present.

Prognosis.—While arthritis deformans does not shorten life, complete recovery is not the rule. Under proper care the progress of the disease may be controlled, but the joints are not restored to their normal contour.

Treatment.—To effect a cure there should be an early recognition of this disease and the source of the infection, which can be removed. Some point of septic infection, such as a chronic inflammatory condition in the nose, ear, throat, a localized suppuration or an endometritis, endocervicitis, vaginitis in women, or pus from the kidneys in men. The toxins may have their origin in the lung, stomach or bowels; a constipated condition of the bowels or a dilated stomach may be present. If there is nothing in this

group from which infection may take place, then a rheumatic origin of the disease may be present.

Having determined the exciting cause, its intelligent removal must be undertaken.

If possible the patient should avoid exposure during wet and cold weather and reside in a warm climate. The Spa treatment is beneficial in many cases. Hot water, air or steam baths are often of benefit, and yet some cases are aggravated by them. In other cases hot sand or mud baths do well. The application of hot, wet or dry compresses to the joint frequently assist in lessening the pain.

These patients should have a full diet, especially of nitrogenous and fatty foods, at least two meals a day at which meat should be allowed, and, if dyspeptic and not gouty, a full meat diet is of service. The fats might be taken in the form of milk, cream and olive or cod liver oil, bacon, increased butter or cream with fruit; starchy foods and sugars are apt to excite flatulent dyspepsia and should be limited. Carbohydrates in the form of toast, biscuits, and bread are permitted. Vegetables and fruits may be taken freely. The clothing should be warm, and the hands and feet should be well protected from cold, as cold generally increases the pain about the joint.

Exercise in the fresh air, even if painful, should be encouraged but short of fatigue.

During an acute attack the patient should be kept in bed. Massage and baths are of service, as soon as the acute symptoms have subsided. If the patient is unable to take exercise, massage is beneficial, as it

retards the ankylosis atrophy and diminishes the infiltration about the joint. The application of the dry hot air will benefit some cases. Electricity, the galvanic current, the electric bath and the static electricity are beneficial.

In the selection of the remedy, the case should be thoroughly taken into consideration, and as we have found in our study thus far that there is apt to be an infection, or some primary condition at work, so here a remedy that will reach back must be sought out, as:

Benzoic acid, *benzoate of ammonium* and *lithium* should be studied in these cases where the urine presents a strong ammoniacal odor and is of a high color. There is more or less absorption going on, the bladder is irritable, the patient complains of pains and there are nodosities about the joints.

Guaiacum is another remedy that should be studied when there are arthritic pains in the limbs with shooting and tearing in the joints. There is a constant desire to urinate. The urine is very fetid

Ledum.—This remedy is of service in many of these cases when there are arthritic deposits in the joints of the hand and fingers, which are attended with tearing, burning pains.

Actæa racemosa is of great benefit in many of these cases, when there are sharp, cramping pains, that are worse at night. It is recognized by all schools of practice, and the *actæa spicata* should be remembered in this connection as well as *caulophyllum*.

Sabina should be studied in those cases in which there is menorrhagia and in those who are plethoric.

Pulsatilla.—This should be prescribed on the collateral symptoms.

Sepia.—This remedy is of service in teething subjects in which the collateral symptoms are the ones upon which to base the prescription.

Echinacea, *baptisia* and *carbolic acid* have each proven of service when there has been a septic condition operative.

Ferrum iodide should be remembered in many cases as well as the *iodide of mercury* when the general indications are present.

Colchicine and *salicylate of soda* should be studied when the condition is associated with gout and rheumatism.

MUSCULAR RHEUMATISM.

Synonym.—Myalgia.

Definition.—This is a painful affection of the voluntary muscles which is accompanied by pain and slight swelling. The aponeuroses and periosteal attachments of the muscles may also be involved.

Etiology.—It is more frequently seen in men than in women, and follows wetting from rain or sitting near an open window. Gouty and purinemic patients are the most frequently affected. One attack appears to be a predisposing feature.

Symptoms.—The most common is the localized pain without constitutional symptoms. The pain may be described as a slight dull ache, or as sharp and stabbing in character. It is increased by any movement that brings the particular muscle into action. There may be a slight swelling. It is usually of but short duration, but in some cases it is protracted and may be termed chronic. Recurrence is common and muscular pains and stiffness are common during damp weather. A most common type is lumbago, which is an involvement of the quadratus lumborum and other muscles of the back. It may be such as to incapacitate the patient.

Torticollis or stiff neck is an involvement of the sterno-cleido mastoid and other muscles of the cervical region. It is usually unilateral and causes the patient to hold the head in the position that causes the least discomfort.

Pleurodynia is applied to an involvement of the intercostal muscles, and in certain cases the serratis magnus and the pectoralis. The pain is distressing on account of the respirations. The left side is the one most frequently involved.

Cephalodynia is the term applied when the muscles of the scalp are involved, scapuledynia to those of the scapular region, and omodynia those of the shoulders. The process may involve the muscles of any portion of the body.

Treatment.—Persons subject to repeated attacks should dress warmly, wearing flannel next to the skin, and avoid so far as possible over-heating and chilling of the body while perspiring. The diet should be one that is nutritious, and during the cold weather should be one that contains a large percentage of fats. Tepid, cool or cold baths should be employed and followed by thorough friction.

During the attack the part affected should have rest. In pleurodynia the parts should, when practicable, be thoroughly strapped; this will not only immobilize the parts, but the straps will retain the heat. Care should be exercised not to immobilize a joint for too great a period at one time, as ankylosis has been known to result. Dry heat by means of a hot-water bag, ironing the parts with a warm flat iron, a piece of flannel or a sheet or two of paper being first placed upon the part, are of benefit. The hot air apparatus, and the incandescent light, or the Turkish bath, are of service. The high frequency electricity followed by light vibratory massage, if it can

be borne, is frequently very serviceable. Many patients demand a liniment to be applied. In reality it is the rubbing when applying it that is of more benefit than the liniment in many cases.

Cimicifuga racemosa.—This remedy is indicated in cases of muscular rheumatism in nervous hysterical subjects. The muscles involved are extremely sore and tender to the touch. It is the belly of the muscle that is involved. If the patient is a women, there is usually a history of severe pains in the back, through to hips and down the thighs and more or less hysterical manifestations during the menstrual period. The pains in the muscles are severe and are accompanied by more or less stiffness and numbness of the affected part, which is worse from motion.

Bryonia alba.—This agent produces an intense redness and irritation of the muscular fibres. The patient is usually of the rheumatic diathesis, of a bilious temperament and inclined to anger upon the slightest provocation. The pains may be dull in character, but more frequently they are lancinating in character, are worse from any movements of the parts and are better from continuous wide pressure, from warmth, after perspiration and during the daytime.

Arnica montana.—This remedy should be studied in those cases in which there is severe pain of the muscles that can be traced back to over-exertion, or traumatism of the muscles.

Gelsemium semp.—This remedy should be remembered in those cases in which the patient presents the

"all tired feeling." The patient is drowsy, stupid and greatly exhausted. He complains of myalgia in various parts.

Ammonium muriaticum.—This agent in doses of from five to twenty grains, repeated every three hours, has a most beneficial effect in many cases of lumbago.

Rhus toxicodendron should be studied in those cases in which the modalities of this remedy are present.

Tartar emetic should also be studied in cases of lumbago. *Dulcamara* in torticollis, and *phytolacca* in omodynia.

PURINEMIA.

Synonyms.—Uricacidemia; Uricemia; Lithemia; Irregular Gout.

Definition.—This is a disease in which there is retained in the blood partially oxydized food material of which the biurates are the most common.

Etiology.—Excessive eating and the drinking of alcoholic stimulants, etc., accompanied with lack of exercise, sedentary habits and the impairment of the eliminative functions of the body, whereby an accumulation of urates in the system results.

Symptoms.—While the symptoms are varied and indefinite, the most common are those of the digestive tract, as intestinal fermentation, constipation, headache, which is accompanied by dizziness, ringing of the ears, insomnia and neuralgia and indefinite pains in various parts of the body. Sensations of numbness and tingling of the hands and feet are complained of. Symptoms of neurasthenia as well as irritability of the temper are present. The skin presents various diseases, as eczema, psoriasis and pruritus ani. There is frequently loss of flesh, a cough and palpitation of the heart. The urine usually shows a decrease from the normal amount, uric acid, an increase of indican, at times a trace of albumin and a few hyaline casts and crystals of calcium oxalate.

Prognosis.—This depends upon the ability to control the patient in regard to his habits.

Treatment.—This requires a most careful investigation of individual cases, the habits of the patient, and the various influences that ameliorate and aggravate the condition. Exercise is a most important factor in the management of many of these cases and should be undertaken and gradually increased, but at no time should it exceed slight fatigue. Walking, golf playing, horse-back riding and rowing are beneficial. Bathing should be considered. The warm bath on retiring, that will keep the skin clean and assist elimination, is serviceable. The cold morning bath should be undertaken cautiously if at all. The manner in which the patient reacts should be noted. If he does not react well, a thorough friction with a dry salted towel is often helpful.

He should be encouraged to live as much as possible in the open air and form a habit of deep breathing. The home should be thoroughly ventilated and fresh air allowed in the sleeping apartments. This is especially desirable if the apartments are heated by furnace. In this condition it is well to ascertain if the nares are obstructed. When it is necessary for the patient to change his place of residence, one should be selected in which the altitude is not too great. The condition of the heart should receive attention. Many of these cases do not stand the excessive stimulation of the sea-shore as well as they do a moderate mountain altitude.

Constipation should be avoided. This can usually be done by regularity of habit, diet and exercise. Sufficient rest and sleep at regular hours and in a

thoroughly ventilated dry room are necessary. Apart from the occupation, the patient should have recreation in some form, which will keep the mind occupied. To this end an avocation, as well as a vocation, is helpful. With many patients, too small an amount of water is taken. A pure water, free from lime and iron, should be drunk to the extent that three pints of urine are excreted from the kidneys during the twenty-four hours. Alkaline and peptonized waters are beneficial.

The diet is a most important factor and the class of food and its preparation should receive careful attention, as well as the quantity consumed. Many patients consume a much greater quantity of food than is needful, and as a result there is thrown upon the system a large amount of waste product. This should be corrected. The food should consist of *purin-free bodies* in so far as possible. In this group are eggs, milk, butter, cheese, white bread, rice, sago, fruits, and a limited amount of meat, as nitrogenous food is demanded by the system. Pickled, fried and salted meats should be forbidden. Fish and oysters are allowed. The great objection to the red meat is not substantiated. Tea, coffee, and cocoa should be taken in moderation. Alcohol and wines should not be taken nor highly seasoned, greasy, twice cooked foods, rich soups and sweet cooked food. Animal foods should be roasted, boiled or broiled. Meat should not be taken more than once a day. Potatoes, spinach, Brussels sprouts, cauliflower, peas and beans, wheat and oats contain a large percentage of proteids

and should be used with moderation. Of fruits, apples, grapes, oranges and peaches are beneficial. These should be fresh, as dried fruits do not answer as well. The therapeutics of gout should be studied in this connection.

Pichi.—This remedy should be studied in those cases in which the bladder is greatly irritated and in which there are urinary calculi forming. The urine is highly acid, excoriates and contains pus. There is a frequent desire to pass the urine, which is attended with a burning pain and followed by an agonizing tenesmus.

Berberis vulgaris should be studied when there is sensation of lameness and soreness or burning in the renal region. At times there may be sharp stitching pains radiating from the kidneys to the small of the back and down the ureters. There are deposits in the urine, uric acid crystals, or the amorphous urates, which form a brick dust or pink sediment.

Thlaspi bursa pastoris. This remedy has a positive action when there is a chronic cystitis, dysuria with a spasmodic retention of the urine. There is renal colic with brick dust sediment and phosphatic deposits in the urine. There are frequently passive venous hemorrhages which occur with the disease.

Lycopodium.—This remedy should be studied in those cases in which there are copious sediments of the character of red sand. The patient is subject to biliousness and dyspepsia. There is an aggravation of all the symptoms from 4 to 8 P. M.

Sepia should be studied in chronic conditions of

this character in women, when the portal system is the most involved. There is an abundance of urates in the urine, which is highly acid and has a high specific gravity.

Colchicin.—This remedy should always be studied when a gouty condition is present.

OSTEOMALACIA.

Synonyms.—Malacosteon; Mollities Ossium.

Definition.—This is a disease in which there is a softening and bending of the bones as a result of a solution of the lime salts.

Etiology.—This has not been determined. It is most common among females between the ages of 25 and 40. It frequently occurs during pregnancy, and especially if the pregnancies have been repeated at frequent intervals.

Pathology.—The absorption of the lime salts begins at the edges of the trabecular and Haversian canals. The solution of the lime salts is theoretically attributed to the presence of lactic and carbonic acids, but just why this action takes place has not been fully explained. Softening of the pelvic bones occurs early in the disease and produces marked deformity; the iliac bones flaring outward, while the acetabulum is forced inward. The lumbar vertebræ are pushed forward and downward.

Symptoms.—The patient complains of pains in the region of the pelvis and lower extremities, with great debility, feebleness and unsteadiness of the gait. The softening of the bones is followed by scoliosis, lordosis and kyphosis. The bones of the extremities show deformity and are easily fractured. Nervous disturbances appear, as tremor, spasms, muscular wasting. Parturition is rendered difficult or impossible. The urine contains an excess of the lime salts. The disease may last for many years.

Diagnosis.—This is difficult at the beginning of the disease, and it can only be made with a degree of assurance when the deformity of the bones has developed, even then it should be distinguished with care from osteomyetomata; rickets is a disease of childhood, while this is a disease of advanced life.

Prognosis.—This is grave, permanent recovery rarely taking place. Women are exposed to the danger, during parturition, from a contraction of the pelvis.

Treatment.—This has many points of similarity to rickets. The patient should be warned of the danger of falling and fracturing bones, and women who have a tendency to it should know of the danger of renewed pregnancies. The diet should be one that is generous and highly nutritious.

Phosphorus.—This remedy should be studied when the general symptoms are such as indicate this remedy. The patients are tall, slender, with fair skin, quick perception and of a very sensitive nature. They are oversensitive in all their senses, especially to light, noises, odors, and touch. There are indications of fatty degeneration.

Calcarea phosphorica.—Should be studied in anemic, dark complexioned, thin patients whose spines are weak and disposed to curvature. They are unable to support the body, and girls about puberty are apt to show softening of the bones and curvature of the spine.

Calcarea carbonica in diseases that arise as the result of defective assimilation and imperfect ossifica-

tion. There is great acidity of the digestive tract, sour eructations, sour vomiting, sour stools, sour odors of the whole body.

Calcarea iodatum should be remembered in many of these cases as well as *calcarea fluorica* and *symphytum.*

Silicea should be studied in those who are light complexioned with fine dry hair, pale face, weakly and lax muscles, who show evidences of much sweating about the head. They are weak and have weak ankles; they must be kept warm.

SCURVY.

Synonym.—Scorbutus.

Definition.—This is a disease characterized by swollen, tender bleeding gums, anemia, purpura and prostration.

Etiology.—This is dependent upon the lack of fresh vegetables in the diet and an excess of salt meats and fish and the use of stale foods.

Pathology.—The gums are softened and ulcerated and there are hemorrhages into the tissue and the teeth are loosened and fall out. There are hemorrhages of a subperiosteal character which separate the epiphysis from the shaft of the bone. The bones of the arms, legs, vertebra and scapula are often involved in the process. The spleen is enlarged and softened; and there is bleeding into the liver and kidneys and muscles with degenerative changes.

Symptoms.—These appear slowly. There is a history of anorexia, lassitude and prostration, which gradually becomes more severe till the gums become sore, soft, spongy and bleed. The teeth may loosen and drop out; ulceration of the gums and ecchymosis may develop. The breath is offensive and foul, and the tongue is swollen, while there may be hemoptysis, hematemesis, hematuria and menorrhagia; and there may be edema about the ankles. Mastication becomes almost impossible, and weakness ensues with mental depression, palpitation of the heart and constipation, but at times diarrhea results, and the articulation becomes swollen and tender. Fever is present during the last.

Diagnosis.—This is usually easy with the spongy condition of and hemorrhages from the gums, knowledge of the improper diet and the whole condition clearing up when the proper diet is instituted.

Prognosis.—If the case is seen early and treated properly, this is favorable, but if not seen till late, infarcts, nephritis and meningeal hemorrhages render this unfavorable.

Treatment.—This is prophylactic at first and consists in taking a sufficient amount of fresh vegetables and a long sea voyage. Lemon and orange juices with plenty of fresh meat and green vegetables, as spinach, onions, cabbage and celery, will cause the disappearance of the symptoms in most cases. If the digestion is impaired, the fruit juices should be given with milk, beef juice, gruels, scraped meats, eggs, etc., till more substantial food can be tolerated. The mouth will demand a mild wash.

The correction of the diet, the conveying on board of ships and on the march of a proper food, are prophylactic, and as a result a remedy is seldom required. In some cases a remedy may be of service for a short time till nutrition is corrected.

Muriatic acid should be remembered in these cases when the prostration, feeble heart's action and stomatitis are the leading symptoms.

Nitric acid should be studied when ulceration, especially about the mouth, is the important symptom.

When hemorrhage is the important symptom, *hamamelis*, *secale cornutum*, *terebinthina* and *hydrastis* should be studied.

INFANTILE SCURVY.

Synonym.—Barlow's Disease.

Definition.—This is a disease of infancy, having many points of similarity with scurvy as observed in adults. As scurvy has become less frequent in adults it has become more prevalent among children.

Etiology.—It is most prevalent in those from six to eighteen months of age. It is dependent upon improper diet, just the elements needed or lacking have not been definitely determined. It is observed among the better class of patients, those who are fed upon proprietary foods, as sterilized or condensed milks, and occasionally those who are breast fed.

Pathology.—There are subperiosteal hemorrhages that result in separation of the periosteum from the bone, the blood in time finding its way between the epiphysis and the bone. The bones of the legs, arms, vertebræ and scapulæ are the seat of the hemorrhages. The long bones in time show thickening. The mucous membranes, serous sacs, and viscera show hemorrhages, and the gums become spongy.

Symptoms.—For a few days preceding the development of the typical symptoms of the disease the child is noticed to be not quite well, is irritable, fretful and weak. It is soon observed that there is tenderness of the legs when they are moved. The shafts of the bones especially about the epiphysis are tender; above the wrist or the upper ends are especially so.

The gums are swollen, purple, spongy and bleed

easily from the slightest touch. The teeth become loose. Petechiæ appear on the skin and the slightest touch gives the indication of a bruise. Ptosis results from orbital hemorrhage. Hemorrhages occur from one or all of the mucous membranes. There is extreme anemia and debility, but little emaciation. There is seldom any fever.

Diagnosis.—This is based upon the condition of the gums, the tenderness of the epiphysis, the petechiæ, etc. The majority of the cases are mistaken for rheumatism, which is rare in children so young, and the pain of rheumatism is at the articulation and not at the epiphysis. Those cases in which the pain is such that the child keeps the limbs motionless, may be mistaken for infantile paralysis. In rachitis the hemorrhagic tendency is absent. It is hard for the attending physician to realize that the child in a well to do family is suffering from the scurvy.

Prognosis.—The course of the disease is slow. When death results, it is after three or four months from heart failure. Under proper treatment the chances for rapid recovery are good.

Treatment.—The patient should be given cow's milk, properly modified to meet the age of the child; with this orange or lemon juice should be given half an hour before the regular feeding. One-half to four ounces should be given at a time, depending upon the age and tolerance of the child. Even the presence of diarrhea is not always a contraindication for the fruit juice, as the diarrhea may be but an expression of the

disease. The juice of fresh beef is also of benefit in many cases. If the child is old enough to digest it, the use of fresh vegetables, scraped ripe apples, grapes free from the skins and seeds, and well baked potatoes may be allowed. Inunctions of olive or cod liver oil are also beneficial if the child is highly anemic. The surroundings should be hygienic and the ventilation of the room good. If epiphyseal separation has taken place, the limb may require splints or supports.

The remedy is not important, but *arnica*, *thlaspi bursa pastoris*, *hamamelis* and *phosphorus* are the most important. The *thlaspi* is especially beneficial.

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